Executive Compensation Following Mergers and Acquisitions: the Impact of Institutional Ownership

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ABSTRACT

This thesis investigates the monitoring effect from institutional ownership on bidder Chief Executive Officer (hereafter CEO) compensation in mergers and acquisitions (hereafter M&A) as well as the shift in compensation structure. While it is well-established in the literature that bidder CEO compensation soars significantly after conducting such transactions, the sources of the growth are left unclear. One major argument, the traditional theory, proposes that the growth derives from additional wealth created to shareholders in M&A, because according to the nature of compensation contract, CEOs' interests are effectively aligned with shareholders' benefits. On the other hand, scholars of managerial power theory argue that managerial power is stronger than shareholders' oversight, so managers use M&A as a cover to expropriate wealth from shareholders. Whether the traditional theory or the managerial power theory dominates depends on the presence of optimal contract and the effectiveness of corporate governance. Institutional owners have more motivation and resources to restrict managerial behaviour than diffused owners. Thus, the change in CEO compensation following M&A and the driving factors behind the change could be different in firms with different types of ownership.

After examining the 268 merger events from 266 US public non-family bidding firms from 2001 to 2005, this study finds that the magnitude of increase in CEO cash-based compensation is significantly alleviated in the presence of large institutional shareholders, and that the increase seems to be positively related to good short-term performance rather than managerial power. However, the concentrated institutional ownership does not seem to affect CEO equity-based compensation or the change in compensation structure. Besides, we do not find any significant relation between firm long-term post-acquisition performance and the market reaction to the announcement of M&A. Thus, we propose that without a reliable indication from short-term performance, large institutional shareholders could have problems in understanding the potential impact of M&A and they might adjust CEO equity-based compensation in a serial process after M&A.

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TABLE OF CONTENTS

LIST OF TABLES AND GRAPH

1 INTRODUCTION

The separation of residual claims of free cash flow and decision making in corporations induces the conflict of interest between managers and shareholders (Berle & Means, 1932; Jensen & Meckling, 1976; Fama, 1980). Executive compensation is widely used as a governance device to motivate managers to act in the best interest of shareholders by tying managers' wealth to their performance (Jensen & Meckling, 1976; Jensen & Murphy, 1990; Murphy, 1999). The design of optimal compensation contract and the effectiveness in mitigating agency problem have been discussed in scores of recent studies. According to the traditional theory[1] such as addressed in the study of Core, Guay, and Larket (2003) and Bebchuk and Fried (2003), management performance is directly observable or indirectly measurable, and the boards of directors are well-advised in their job to make sure the bargaining for compensation between managers and shareholders is optimal. However, numerous empirical studies which focus on the linkage between top managers' compensation and firm performance fail to find a strongly positive relation between performance and compensation (Antle & Smith, 1986; Jensen & Murhpy, 1990, Magnan, St Onge, & Thome, 1995; Jeppson, Smith & Stone, 2009). Their findings cast doubt on the relevance of the traditional theory. The managerial power theory argues that the boards of directors lose their independence and accountability in the face of being blackmailed or packed by management, thus mangers take advantage of their power to extract rents (Morck, Shleifer, & Vishny, 1988; Lane, Cannella, & Lubatkin, 1998; Crystal, 1991; Core et al., 2003; Bebchuk & Fried, 2003).

M&A is a firm's most significant capital expenditure, which usually takes the longest time to finish and results in the greatest change in terms of firm's scale and scope. Since the level of CEO compensation increases with firm size (Roberts, 1956; Simon, 1957; McGuire, Chiu, & Elbing, 1962; Rosen, 1982; Gomez-Mejia, Tosi, & Hinkin, 1987; Baker, Jensen, & Murphy, 1988; Murphy, 1999), the amplified change in CEO compensation provide an excellent ground to test the above two contradictory theories. Many studies focus on the relation between post-acquisition performance and top managers' compensation in bidder firms (Kroll, Simmons, & Wright, 1990; Williams, Michael, & Waller, 2008), but the results are subject to the choices of time periods, horizons, measurements, and techniques (Schoenberg, 2006; Tuch & O'Sullivan, 2007; Dutta & Jog, 2009). No matter whether the pay-for-performance sensitivity is found to be

[1] Traditional theory is also named interest alignment theory or optimal contract theory.

positive or negative, it is hard to tell the role of managerial power in determining CEO compensation in M&A. As far as we know, only three papers directly examine the two hypotheses in M&A. Grinstein and Hribar (2004) find that the market reacts negatively on average to acquisition announcements but still 88% of US bidding CEOs receive considerable bonuses, which arise from CEOs' control power. Thus, they make the conclusion that CEO compensation can hardly align the management and shareholders' interest. Instead, CEO compensation aggravates the agency costs by providing CEO with an opportunity to expropriate wealth from shareholders. Coakley and Iliopoulou (2006) claim that CEO salary and bonus in M&A are more affected by managerial power in the US[2] firms than in the UK firms. Bugeja, Rosa, Duong, and Izan (2012) extend the investigation to Australia firms and propose that Australian managers are paid for their skills and performance in M&A.

Regardless of the varying time periods and different markets employed in the literature, the basis that traditional theory and managerial power theory build on is the effectiveness of internal governance from shareholders. Since ownership structure is one of most important internal monitoring forces that could prevent managers from expropriating wealth from shareholders, inconsistent conclusions in the literature of the driving factors behind the growth of CEO compensation in M&A could be explained by the variety of ownership structure. For example, Ben-Amar and André (2006) find family controlled firms and the presence of outside blockholders increase bidders' performance. Since institutional ownership is prevalent in public companies, it is worthwhile to take into account of the interacted effects of large institutional shareholders and managerial power on compensation setting. This thesis investigates the changes in bidder executive compensation following M&A by addressing the monitoring role played by large institutional shareholders. In widely held companies, a shareholder with small ownership does not have sufficient motivation to monitor managers since the proportional benefits from firm's increased value after monitoring do not outweigh the total costs that the shareholder has to bear alone (Grossman & Hart, 1980). On the other hand, a large shareholder, who owns a dominant number of shares, is willing to put efforts in improving firm performance (Demsetz & Lehn, 1985; Shleifer & Vishny, 1986) and also has better resources to exercise governance roles and protect investors' benefits (Parthiban, Kochhar, & Levitas, 1998; Almazan, Hartzell, &

[2] Their sample includes 73 UK bidding firms and 27 hand-collected US bidding firms which target UK firms. Therefore, their sample is different from the sample of Grinstein and Hribar (2004).

Starks, 2005). However, the effectiveness of institutional large shareholder's oversight is constrained by the monitoring costs and the institution's assets (Almazan et al., 2005), the liquidation cost of current securities and reinvestment cost in alternative shares (Tannous, Yang, & Jiang, 2013), the significance of the institution's holding in a firm (Khan, Dharwadkar, & Brandes, 2005), the ratio of the institution's investment to its overall wealth (Lori & Schneider, 2002), and its relationship with the firm's management (Brickley, Lease, & Smith, 1988). We aim to give answers to whether institutional ownership can explain the variance in the level of CEO compensation following M&A and whether the changes and differences can be attributed to the alignment of principals' and agents' interests or to the expropriation of benefits from shareholders via managerial power in different ownership.

Another contribution of our study is the investigation of how CEO compensation structure changes in M&A and what drives these changes. Specifically, we examine the traditional theory and the managerial power theory by looking at large institutional shareholders' and CEOs' selections of the type of compensation. Under rigorous scrutiny and effective governance, CEO should be compensated through a large portion of long-term incentive payments, such as options and stocks, to lengthen managerial horizon (Jensen & Murphy, 1990; Hall & Liebman, 1998; Murphy, 1999; Datta, Iskandar-Datta, & Raman, 2001). However, with the power and the freedom of self-selection, we propose that CEOs prefer cash if they know ahead that firm value will drop, and they favor equity in the opposite condition because their wealth will go up with the increased firm value after M&A.

The third contribution is the incorporation of the impact of acquisitions on bidders' long-term performance and the matching of the impact with different types of CEO compensation. Market reactions to M&A announcement could be biased as limited information is revealed during a short period of time, and firms' actual benefits from M&A transactions could deviate from announcement day abnormal returns (Hitt, Harrison, Ireland, & Best, 1998). Therefore, we include the firm long-term performance in our analysis to explore the determinants of CEO compensation in M&A and to test the power of prediction from firm short-term performance.

We study 268 M&As from US public non-family companies[3] which conduct and complete

[3] Agency problems, corporate governance, and operating horizons are different between family firms and non-family firms (Fama & Jensen, 1983; Anderson & Reeb, 2003; Shim & Okamuro, 2011). To exclude the mixed impact of family ownership and only test institutional ownership, our sample excludes the family firms identified by the study of Anderson and Reeb (2004).

merger and acquisition transactions during the period from 2001 to 2005. Different from the consensus in the literature that CEO compensation jumps significantly through M&A, we find that, before controlling for firm performance, the magnitude and the direction of the changes are neither uniform nor consistent over time. Before 2001, surges in the stock option payments, boom of the stock market, and big wave of M&A accelerate both cash and equity payments to executives. After 2001, CEO cash compensation still increases after M&A, but equity compensation, especially option grants, decreases substantially, resulting in lower overall compensation. Nevertheless, bidder CEOs still receive much higher compensation, in terms of cash and equity, than the organic group, which does not engage in M&A during the same period. Through our tests, management expropriation of cash in M&A is greatly mitigated by large institutional shareholders. Large institutional shareholders not only reduce the level of increases in cash but also link CEO cash compensation to firm short-term performance and cut the increases from managerial power. However, large institutional shareholders do not show any oversight over CEO equity compensation or over the shift of compensation structure. Since our results suggest that market reaction to the announcement of M&A is not a good indication of the firm long-term performance, we conjecture that large institutional shareholders have no basis to evaluate management performance in M&A and adjust CEO equity compensation in the completion year. Instead, they may set CEO equity compensation gradually in serial process.

The reminder of this thesis is organized as follows: Chapter 2 comprehensively reviews the literature of CEO compensation, M&A, ownership structure, and firm performance. Chapter 3 discusses the development of our theoretical hypotheses. Data selection and variable construction are presented in Chapter 4, while Chapter 5 summarizes the properties of our data and demonstrates the regression tests. Chapter 6 concludes this study and makes suggestions for future resreach.

2 LITERATURE REVIEW

Recent publications discuss the increases in CEO compensation through M&As. They compare the change in a group of companies that experience M&A transactions with the change in a comparable group that does not experience M&As. Some studies conclude that the change in compensation is necessary to maintain the optional compensation contracts while others propose that M&A activities are good occasions for CEO to extract rents beyond what might be justified by optional compensation. In this chapter, we review the literatures regarding CEO compensation, institutional ownership, and M&A. The purpose is to highlight the findings of the existing literature and point out how our analysis will complement the literature.

2.1 CEO Compensation, Agency Problem, and Corporate Governance

In large public corporations, the ownership and control are separated. Investors devote funds to projects and enjoy the residual claims of cash flow as well as bear the related risks. Managers, on one hand, provide professional knowledge and skills, make decisions in operating and managing the assets, and, in return, receive a certain amount of payment according to the compensation contract. As a self-interest driven person, the manager has less motivation to put shareholders' interest first and this is known as an agency problem. The difference between the maximum value that can be generated to shareholders and the value that is actually generated is known as agency costs. In order to mitigate the agency problem, CEO compensation should be designed to reward for professional knowledge and management skills as well as serve as a mechanism to inspire management to pursue shareholders' interest (Jensen & Meckling, 1976; Fama, 1980). An optimal compensation contract should be written by internal corporate governors who understand management performance and also are independent from management (Murphy, 1999). The board of directors is one such mechanism to protect shareholders' interests: the board of directors control firms' major policies, including executive compensation, via voting rights (Fama & Jensen, 1983a, Fama & Jensen, 1983b). The board is comprised of insiders, who have access to inside information, and outsiders, who are supposed to monitor management for shareholders' best interest.

Jensen and Meckling (1976) report that many outside board members are nominated by managers, thus they are likely to cater to managements' demands when confronted with threat of dismissal. In addition, directors who are also executives in other firms are less likely to take

active roles, as they either experience the same situation and thus feel like they are in the same boat or they are too busy with their own management affairs and thus have no time to keep an eye on other CEOs. Meanwhile, managers pack inside board members via greenmail to get their approval of managerial decisions, so inside board members turn a blind eye to management behaviour which benefits CEOs themselves (Kosnik, 1987). Besides, the directors usually own a small portion of shares, which do not provide sufficient motivation to protect shareholders' interests (Baker et al., 1988; Core, Holthausen, & Larcker, 1999; Bebchuk & Fried, 2003).

2.2 CEO Compensation and M&A

M&A is a significant investment decision, in terms of the scale and the complexity of the transaction (Grinstein & Hribar, 2004; Dutta & Jog, 2009), and it causes a big increase in bidder CEO compensation. Conyon and Gregg (1994) compare the increases in CEO compensation following M&As with the increases observed in a peer group that do not experience acquisition activities. They propose the increases in compensation are much higher from conducting M&A than through internal growth. Girma Thompson, and Wrightt (2006) use a dynamic model to examine the impact of M&A on CEO compensation and confirm that the rapid growth also exists in UK bidding firms.

2.2.1 Traditional Theory of CEO Compensation

According to the traditional view of compensation design, a CEO is paid for creating benefits to shareholders by using professional management skills based on an optimal contract. Girma et al. (2006) state "This posits that in an environment of incomplete monitoring, the (risk-neutral) shareholder-principals would devise a payment mechanism to motivate the (risk-averse) executive's pursuit of shareholder value" (p322-323). Core et al. (2003) propose that, although the perfect compensation contract is expensive, firms are expected, on average, to make sufficient efforts to modify and complement the optimal contracts.

In reality, information is costly for outsiders to access and they may find it hard to fully understand management investment decisions, especially M&A. Theoretically, payments should only be awarded to managers for value accrued to shareholders; however, the benefits from M&As could show up over several years in the future. To control for good performance, Grinstein and Hribar (2004), Coakley and Iliopoulou (2006), and Bugeja et al. (2012) also

employ measures of the manager's efforts and devotion in M&A. Thus, the jump in CEO compensation after M&As may be attributed to management's excellent performance and to their efforts to increase a firm's prospective growth.

2.2.2 Managerial Power Theory of CEO Compensation

Following the managerial power framework, the expensive transaction costs (information costs, contracting costs and so on) (Core et al., 2003) and insufficient market monitoring (Bebchuk & Fried, 2003) could prevent firms from setting and continuously revising optimal contracts. Bebchuk and Fried (2003) review few significant papers and state that "[e]xecutive compensation is viewed not only as a potential instrument for addressing the agency problem but also as part of the agency problem itself"(p72) .

Shleifer and Vishny (1988) find CEOs are paid for M&A regardless of profitability. Hence, the increased compensation could be a motivation to engage in M&A (Dorata & Petra, 2008). Empirical evidence also suggest that CEOs conduct M&As because of available free cash and desire for empire building (Jensen, 1986), risk diversification (Amihud & Lev,1981), and pursuit of power, social status, and other non-pecuniary benefits (Morck, Shleifer, & Vishny, 1990). Mueller (1969) and Jensen (1986) argue that M&As offer managers a good excuse to bargain more compensation with shareholders for enlarged firm size. Harford and Li (2007) indicate that compensation contracts, though being designed to mitigate the conflict of interest, are used by managers to make up for their personal wealth loss in M&A in bad performance or to boost their wealth in good performance in M&A.

2.2.3 Empirical Studies

Despite different explanations, many financial experts first look into the performance and cast doubt on the fairness and rationale of compensation leaps in M&A. Acquiring shareholders systematically suffer as a result of M&A. Jensen and Ruback (1983) and Moeller, Schlingemann, and Stulz (2003) propose that the market reacts negatively to a bidding firm's announcement of acquisition. Loughran and Vijh (1997) prove that a firm's market value declines for several years after M&A. However, Healy, Palepu, and Ruback (1992) test the combined value of bidders and targets and conclude that the stock market has a positive expectation of M&A and that the merged firms raise their productivities after M&A. However, Ramaswamy and Waegelein (2003)

extend the study of Healy et al (1992) to a 10-year window, 5-year before and 5-year after M&A transactions. They document that firm long-term performance in the full sample, measured as industry-adjusted cash flow returns on market value of assets of pooled companies, deteriorates after acquisitions. However, Abhyankar, Keng-Yu, and Zhao (2005) develop a stochastic dominance method to test the bidders' performance and they conclude that the bidders do not underperform in M&A.

Secondly, scholars also compare the compensation growth and firm performance. Girma et al. (2006) show that CEO compensation in the UK after mergers is not strongly associated with firm performance but with firm size, which is consistent with Baker et al (1988), and Murphy's (1999) result. On the other hand, Girma et al. (2006) report that shareholders' monitoring effects do not totally vanish because the increases in executive compensation in firms with "wealth-reducing" deals are significantly lower than the increases in a "wealth-increasing" group. Moreover, Harford and Li (2007) show that CEO overall wealth is associated with firm negative stock performance but not with positive performance in US firms. Tian and Yang (2011) examine Austrilia firms and they find the managers with increased bonus are more likely to takeover another firm, which do not increase firm risks. Overall, the conclusions are influenced by various time periods, horizons, measurements, techniques, and other characteristics (Schoenberg, 2006; Tuch & O'Sullivan, 2007; Dutta & Jog, 2009).

2.2.4 Size Effect

Many empirical studies report a robust association between the level of CEO compensation and firm size (Roberts, 1956; McGuire et al., 1962; Rosen, 1982; Baker et al., 1988; Murphy, 1999). Since firm size is greatly increased in M&A, top managers in acquiring firms are rewarded for enlarged capitalization (Dorata & Petra, 2008).

The size effect could be explained by the empire building theory whereby the greater the magnitude of the organization under managers' control, the more managerial power they have to extract rents from weakly governed firms (Simon, 1957). From an economic determinant point of view, superb management skills and experiences are highly demanded in larger firms, so CEOs can ask for higher payments (Becker, 1964; Rosen, 1982). Moreover, Simon (1957), and Gomez-Mejia et al (1987) also mention the tournament theory (or also called the hierarchy theory), which states that getting a higher position is like a competition, in which the contestants

in a higher level have more outstanding skills and they can hardly be replaced by the contestants in a lower level. Large firms have more divisions and subsidiaries (Child 1973), and CEOs in large firms are akin to winners in a tournament race who beat more contestants, and thus they should have the biggest prize (Girma et al., 2006). Cordeiro and Veliyath (2003) also point out that as the business complexity increases in larger companies, CEOs deserve higher compensation for devoting more time and efforts on operations and management. As a result, it is hard to categorize the size effect into the traditional theory or the managerial power theory.

2.3 CEO Compensation and Ownership Structure

2.3.1 Diffused Ownership Verses Concentrated Ownership

Jensen and Meckling (1976) claim that firms with diffused ownership suffer more from agency costs than those with concentrated ownership. Bebchuk and Fried (2003) propose two forces that can impair CEO managerial power: a strong and independent board and a large institutional ownership. To prevent managers from using shareholders' money to maximize managerial wealth, shareholders should set up monitoring devices, but those devices are costly to initiate in practice. While the benefits will be shared among all shareholders, the costs will only be borne by the atomistic shareholder who conducts the monitoring. Thus, because no one has large shares to enjoy bigger benefits from monitoring, shareholders in widely held companies would not watch management activity (Demsetz & Lehn, 1985).

Berle and Means (1932) argue that, as the owners of public corporations do not have direct controlling rights over firm operating decisions or expenditure investments, dispersed shareholders are less influential over management and are less responsible for the firms' potential development. Demsetz (1983) demonstrates that diffused ownership in widely held companies weakens shareholders' disciplinary power over management. Shleifer and Vishny (1986) imply that small shareholders in concentrated ownership would not play a monitoring role.

However, the appropriateness of dominant shareholders' monitoring is also challenged by Lane et al. (1998). They doubt large shareholders' capability of effectively assessing management performance by showing that the holdings of inside information are not necessarily proportional to the holdings of controlling rights. They state that most block shareholders have less engagement in operating strategy decision making and they rely on financial criteria, which is the only available and intuitive information to use. However, the financial data is not

necessarily consistent with firm value. It may take several years to show up the potential benefits of investment projects; meanwhile, managers can manipulate accounting measures to fake good performance. Therefore, Lane et al. (1998) claim that concentrated ownership enhances the monitoring but can also lead to evaluation bias of management plans and behaviour. Eventually, their tests support their conjecture that decision making over M&A or firm performance cannot be improved by intense monitoring from block holders. Besides, when little protection is offered to mininor shareholders, dominant shareholders would use their significant position to extract private profit to take advantages of small shareholders (Fama & Jensen 1983a, Fama & Jensen, 1983b) or aim to reduce their high risk exposure to their firms.

Recent studies have shown that managerial rent extraction behaviour is eliminated in the presence of concentrated ownership. Gomez-Mejia et al. (1987) construct various accounting and financial performance measures in a cross-sectional study of the size-ownership rewards, and they conclude that large shareholders with more than 5% of stakes pay executives for their work rather than for firm size. Riahi-Belkaoui and Pavlik (1993) decompose the associations between ownership structures and CEO compensation, and they argue that shareholders with a major proportion of stocks have a higher tendency to remunerate CEO with equity-based payments, which motivate executives to act in the owners' best interest. Besides, they propose concentrated ownership is a negative function of over-diversification, CEO over-payment, and poor performance resulting from insufficient management capabilities through M&A. Schultz, Tian, and Twite (2013) find the concentration of blockholding enhance the aligning of the managers' and shareholders' interest from long-term compensation packages.

2.3.2 Institutional Ownership

Institutional ownership has grown significantly in recent years, and several studies have confirmed the important role of institutional ownership. Kosnik (1987) shows that institutional ownership enhances board independence. Parthiban et al. (1998) confirm that institutions have a tendency to exercise governance role. McConnell and Servaes (1990) find a positive association between institutional ownership and firm value, proxied by Tobin's Q. Hartzell and Starks (2003) show that concentrated institutional ownership, measured by the top five largest institutional holdings and the Herfindahl index, contributes to a lower level of CEO salary and total compensation but boosts the incentive pay and total pay sensitivity.

Although a high level of institutional ownership is reported to restrict the amount of executive compensation and improves the pay-for-performance sensitivity on average, the effectiveness of monitoring from different institutions is contingent on their resources and the costs they are exposed to, such as the "the liquidity of their portfolios", "fiduciary duties", "their potential business relations with the firms", and "the free rider problems"(Almazan et al., 2005). The authors categorize institutional shareholders into two groups - the potentially active or passive investors according to the institutions' analysis and evaluation skills, training, and willingness to monitor, and they conclude that active institutional investors are more effective in controlling CEO payment, as they are exposed to less monitoring cost.

Compared with family firms, institutions are less emotional attached to their firms and they can easily switch from current investment to alternative ones which have less monitoring requirements and better returns. As a result, the existence of institutional investors does not improve the firms' profitability with certainty. Tannous et al. (2013) examine the monitoring role of family and institutional large shareholders in Canadian firms, and they find the institutional ownership does not improve pay-for-performance in either bonus or equity compensation. They categorize the reasons of inefficiency into that only significant institutional shareholders would oversee managers and that those dominant institutional shareholders may take their ownership advantage to expropriate wealth from small shareholders rather than focus on monitoring mangers.

2.4 Executive Compensation Components

CEO total compensation is composed of salary, bonus, restricted stock, stock option, and other payments. While cash-based compensation rewards managers' work according to the accounting measures in a short term, equity-based compensation forces mangers to enlarge their horizons (Jensen & Meckling, 1976; Cordeiro & Veliyath, 2003). Jensen & Murphy (1990) disclose that inside stock ownership provides a strong incentive for CEOs to act in the shareholders' best interests. Hall and Liebman (1998) find that increasing CEOs' stock and option payments offers desirable incentives for managers to maximize shareholders' wealth. Ang and Core (2000) also prove that a manager's shareholdings reduce agency costs. To extend the research of Ang and Core (2000), Singh and Davidson (2003) decompose the effects of managerial ownership and find that a higher management equity holding leads to a higher utilization of assets but does not

lower excess spending. Tian and Twite (2011) prove that managers' equity compensation increases firms' productivity. Ramaswamy and Waegelein (2003) verify that the firm which compensates its top managers with long-term performance incentive plans and takes over small firms outperforms a comparable group of peers. Harford and Li (2007) document dozens of empirical results which show that management inside ownership forces managers to act on a firm's long term development. On the other hand, because bonus payments only reward for good performance but cannot punish bad performance, Tian and Yang (2011) propose the bonus payments cannot solve agency problems.

Shleifer and Vishny (1988) propose that acquiring managers with equity-based payments limit their expropriation activities from shareholders. Denis, Denis, and Sarin (1997) and Datta et al. (2001) claim that increasing management ownership before takeovers encourages value-enhancing activities. Williams et al. (2008) claim that stock-based compensation encourages managers to take on high-risk and high-profit projects.

2.4.1 Equity-based Payment and Firm Long-term Post-acquisition Performance

The literature vastly reports a positive relation between CEO equity-based payments and firm long-run performance after M&A. The value of managerial equity holding depends on firm's market value, which links the manager's interest with that of the shareholders (Murphy, 1999). Before taking advantage of shareholders, the manager must consider the trade-off between private utilities and the costs to equity holdings. Kroll et al. (1990) propose: *Salary and bonus awards, accordingly, simply compensate for the CEO's human capital and have little to do with performance. In other words, because CEOs are very often given stock options in the firms, they have a vested interest in their firms' performances* (p351). Therefore, equity-based payments motivate bidder managers to acquire firms with potential growth while cash-based payments drive managers to pursue short-term benefits (Tehranian, Travlos, & Waegelein, 1987). Fung, Jo, and Tsai (2009) address this argument by showing that the absence of long-term incentive compensation plans negatively affects firm value following acquisitions.

Gao (2010) explains the impact of management incentive compensation by testing the temporary market reaction to acquiring announcement and firms' value in the long-run following acquisition in a sample of 2,894 acquiring deals in the US from January 1993 to December 2004. The author finds that CEOs with restricted stock and option grants have longer managerial

horizons. Although the long horizons lead acquiring firms to experience lower announcement abnormal returns within 3-day window, those firms' market value in a long term, measured by three-year buy-and-hold abnormal returns following acquisition, is positive and high.

Built on the theory of equity issuance and catering, Gao (2010) proposes that managerial horizons impact M&A activities via the methods of payment and acquiring firms' value is also affected in both short and long terms. With long-term performance incentive plans, top managers tend to finance acquisition transactions with over-priced stocks, which damages firms' abnormal returns but enhances firms' market value in the long-run. On the other hand, the author also argues that, managers without equity-based payments are likely to avoid using overpriced stocks to cater to the market in the short-term. They could acquire targets with negative NPV as long as the market value increases in the short-term.

Oler and Waegelein (2011) find that long-term compensation plans reduce the probability of engaging in wealth-destroying investments. With a sample of 1,683 acquisitions from 1972 to 2003, they also suggest that long-term performance compensation plans improve a firm's fundamental and market performance, measured by the 2-year post-acquisition buy-and-hold abnormal returns. They state that "Long-term performance plans lengthen a manager's decision-making horizon because the performance plan compensation is deferred until the end of the award period and forfeited if the manager leaves during the period." (p.494)

2.5 Bidding Firm's Post-acquisition Performance

Event study is commonly employed in empirical research to measure bidding firms post-acquisition performance. This method is built on the Efficient Market Hypotheses (Fama, 1970), which states that a firm's new information will be reflected in its stock price "immediately" and "unbiasedly", thus market reactions are the correct prediction of firms' development. In reality, because information about other firms can be released simultaneously, market evaluations capture the mixed news available at the same time rather than a specific piece of news. Event study, which adjusts event-period market reaction by subtracting benchmark portfolio return from firms' stock returns, filters the impact of the contemporaneous market information on firms' market value. Therefore, the impact of M&A on a firm's current and future earning ability should be timely and accurately reflected by the changes in the market expectation. However, Dutta and Jog (2009) explore the adjustment of market reactions to M&A in the long term by

considering the abnormal returns in different event windows. They find that after 15 days of the announcement, the market corrects its overreactions in an opposite direction to be consistent with firms' long-run stock performance. The inconsistence between market reaction and long-term performance is also verified by Gao (2010).

Event study methodology is applied by a large body of studies to measure both the short run and the long-run post-acquisition performance. In a short run, which usually takes a few days, the announcement period cumulative abnormal return (CAR) is the most well-known approach to evaluate firms' post-announcement performance. However, in the long run, the proper proxies for bidding firms' performance following acquisition transactions are questioned by recent studies (Ramaswamy & Waegelein, 2003; Dutta & Jog, 2009), and the most critical questions are the selections of event window and the benchmark (Tuch & O'Sullivan, 2007).

2.5.1 Bidding Firms' Long-term Post-acquisition Performance

Event studies are also used to measure bidding firms' long-run post-acquisition performance, and the most commonly used methods are the buy-and-hold abnormal return (BHAR) and the calendar time abnormal return (CTAR). Barber and Lyon (1997), who develop the matched control portfolio of buy-and-hold abnormal return methodology, argue that the BHAR is the most precise and easiest way to interpret investment performance, because it reflects the investors' investment activities. They also claim that "[c]umulative abnormal returns are a biased predictor of long-run buy-and-hold abnormal returns" (p. 346) and that the absence of compounding in the cumulative abnormal return methodology contributes to a measurement bias.

On the other hand, the buy-and-hold abnormal return also suffers from the rebalancing bias, and the skewness bias (Barber & Lyon, 1997). Dutta and Jog (2009) argue that the buy-and-hold abnormal return method faces the trade-off between statistical significance and benchmark selections. However, the skewness-adjusted t-test in the research of Lyon, Barber, and Tsai (1999) can eliminate the skewness bias. Barber and Lyon (1997) argue that the listing, the rebalancing, and the skewness biases in the BHAR approach can be mitigated by choosing controlling portfolio which matches the sample by size and book-to-market ratio. Using both market index returns and matched controlling portfolio return, Dutta and Jog (2009) prove that the latter one is superior in measuring the buy-and-hold 3 year abnormal returns. However, valid solutions to other problems, such as lack of model precision, compounding frequency (Fama,

1998), and the unavailability of stock market prices (Barber & Lyon, 1997) have not be developed yet.

Another way to measure long-term performance is the calendar-time abnormal return (CTAR), under which the expected return of the benchmark portfolio is calculated by Fama and French three factor model. Fama (1998) indicates that the merit of this method is the disappearance of correlation among event-time performance. On the other hand, the multiyear dependence in BHAR is significant and drives the results to be unreliable (Mitchell & Stafford, 2000). However, the calendar-time abnormal returns are hard to be interpreted (Tuch & O'Sullivan, 2007). Also, this method has the potential problems of inconstant factors and heteroskedasticiy in changing the portfolio per month (Williams, 2001).

There are also doubts on the assumption and the proper usage of cumulative abnormal return. Many papers claim that the assumption of no information asymmetry or arbitrage limitations in the stock market is too strong to be reasonable in long term measurements. The information divergence between managers and investors deteriorates in the long-run, and the announcement period cumulative abnormal return fails to reflect bidders' intrinsic value. Thus, some papers rely on the operating or financial measurements, such as operating cash flows (Healy et al., 1992), the cash flow to sales (Andrade, Mitchell, & Stafford, 2001), industry adjusted return on assets (Lu, 2004), and industry-adjusted cash flow returns on market value of assets (Ramaswamy & Waegelein, 2003).

Despite the inconsistent arguments in the literature of whether CEO compensation in M&A is linked to shareholders' interest or managerial power in few papers, a more fundamental question of whether the different ownerships affect the properties of CEO compensation in M& is neglected in the literature. The effectiveness of compensation as a governance device greatly depends on whom the monitoring force is from and how significant the shareholders are. Therefore, we use ownership as a bridge in our next chapter to address the lack of consensus on the explanatory power between the traditional theory and the managerial power theory in the changes in CEO compensation and compensation structure in M&A. Moreover, we also investigate the determinants of CEO compensation structure in M&A and the relation between long-term and short term performance in the rest our study.

3 THEORETICAL ARGUMENTS AND HYPOTHESES

Prior studies document that firm size is a dominant determinant of CEO compensation (Roberts, 1956; McGuire et al., 1962; Rosen, 1982; Baker et al., 1988; Kroll et al., 1990 Murphy, 1999). After M&A, firm capitalization quickly and considerably rises so that bidding managers appear to have "decent" excuse to bargain for higher compensation packages. However, the increasing rate of bidder CEO compensation has been shown to outpace the reasonable speed which is observed for a comparable size and performance (Conyon & Gregg, 1994; Girma et al., 2006; Guest, 2009). We verify this by proposing:

H1a: CEO compensation rises faster through M&A than through internal growth.

When ownership is diffused, there is little incentive for shareholders to oversee management decisions. Only large block shareholders can enjoy big enough benefits to justify devoting efforts and resources on monitoring (Demsetz & Lehn, 1985). As a result, in widely held companies, shareholders suffer more from agency problem than in concentrated firms, as no shareholders are expected to stand out to pay the full monitoring costs (Jensen & Meckling, 1976). Large institutional shareholders have more access to financial, human, and information resources to more actively and effectively prevent management from growing too much power and getting overpayments (Bebchuk & Fried; 2003). Similar to the effectiveness of discipline mechanism, the usefulness of concentrated institutional ownership in corporate governance is also highly doubted, since those large shareholders do not engage in the daily operations and decision-making (Lane et al., 1998). To test the effect of institutional ownership on CEO compensation, we propose:

H1b: Ceteris paribus, the increase in bidder executive compensation is lower in institution controlled firms than in widely held firms.

Though empirical studies on CEO post-acquisition compensation challenge the fairness of increased payments (Mueller, 1969; Jensen, 1986; Datta et al., 2001; Dorata & Petra, 2008), the answers to questions such as why bidder CEO compensation skyrockets after M&A, who controls CEO compensation, and whether CEOs deserve the significant payments remain quite

unclear. To answer these and other related questions, we need to differentiate the widely held firms from institution controlled firms to investigate the powers between mangers and institutional shareholders. If large institutional shareholders maintain their controlling and decision-making rights, managers will have fewer opportunities for self-dealing and thus less success in raising their compensation without bringing benefits. Meanwhile, without monitoring, the CEO in a diffused ownership firm can arbitrarily increase compensation in M&A without improving firm value. That is, the linkage between performance and compensation in M&A is enhanced in institution controlled firms, while managerial power can increase the level of CEO compensation in widely held firms.

H2a: In institution controlled firms, the level of CEO total compensation in M&A is positively associated with the firm performance.
H2b: In institution controlled firms, the level of CEO total compensation in M&A is not positively associated with managerial power.
H2c: In widely held firms, the level of CEO total compensation in M&A is positively associated with managerial power.
H2d: In widely held firms, the level of CEO total compensation in M&A is not positively associated with the firm performance.

Cash-based compensation is the reward for managers' short-term performance, and executives who want to get more cash will focus on short-term achievements. CEOs with considerable managerial power are able to raise their cash payments without exhibiting superior performance if they are not under oversight. Compared with the widely held firms, institution controlled firms can mitigate the unreasonable growth of CEO cash compensation from managerial power by closely tying CEO cash compensation to the firm's short-term performance in M&A.

H3a: In institution controlled firms, the level of CEO cash-based compensation in M&A is positively associated with the firm's short-term performance.
H3b: In institution controlled firms, the level of CEO cash-based compensation in M&A is not positively associated with managerial power.
H3c: In widely held firms, the level of CEO cash-based compensation in M&A is positively

associated with managerial power.
H3d: In widely held firms, the level of CEO cash-based compensation in M&A is not positively associated with the firm's short-term performance.

Equity-based compensation is designed to lengthen managers' horizon and to motivate them to focus on firms' long-term development. Similar to CEO cash-based compensation, higher equity-based compensation is accompanied by good long-term performance if corporate governance is strong and by managerial power otherwise. Since ownership is a major force of internal governance, we propose:

H4a: In institution controlled firms, the level of CEO equity-based compensation in M&A is positively associated with the firm's long-term performance.
H4b: In institution controlled firms, the level of CEO equity -based compensation in M&A is not positively associated with managerial power.
H4c: In widely held firms, the level of CEO equity-based compensation in M&A is positively associated with managerial power.
H4d: In widely held firms, the level of CEO equity-based compensation in M&A is not positively associated with the firm's long-term performance.

CEO total compensation consists of cash-based and equity-based compensations, which are designed to motivate managers' short-term and long-term performance respectively. Market expectations should reflect the impact of the M&A activities on share price; however, it has been shown to be biased surrounding the announcement days. Instead, firm performance in the long-run can more accurately represent the firm's true value. To determine whether market reaction can predict the firm's benefits from M&A, we need to test whether firms long-run post-acquisition performance are positively correlated with CARs.

H5: Long-term post-acquisition performance is positively associated with the announcement period cumulative abnormal returns (CARs).

Equity-based compensation is often provided as an incentive for managers to improve long-

term performance. Therefore, if institutions are long-term investors, they will try to avoid management myopia by structuring CEO compensation contract to have a higher equity-based portion. This also applies to the rewards following M&A activity. In the firms without large institutional shareholders, CEOs will take advantage of their powerful position and their inside information to obtain more private benefits by selecting the type of their payments that benefits them the most. More specifically, in a widely held firm, if a merger transaction is likely to bring additional profits in the future, the CEO will choose more equity compensation, which is contingent on firms' stock price. In contrast, if the firm's value is expected to drop after the M&A, CEO will select a compensation structure that favours cash over equity-based compensation, as cash can be consumed immediately and is independent from firm's future performance.

H6a: In institution controlled firms, the CEO compensation following M&A will favour equity-based compensation.
H6b: If CEOs are the chairmen in the boards and firms' value is expected to decrease, the CEO compensation following M&A will favour cash-based compensation.
H6c: If CEOs are the chairmen in the boards and firms' value is expected to increase, the CEO compensation following M&A will favour equity-based compensation.

4 DATA AND VARIABLES

4.1 Data Selection

The data for this study include executive compensation cover the 5-year period from 2001 to 2005 inclusive. The main reason for this choice is to avoid using merger events from the crisis period. This constraint forces us to limit our data to 2005 or earlier as we want to measure the long term effects of a merger on the bidder by calculating the bidder's performance over the four year period following that merger. Therefore, we need a window of four years after the last merger in our data to calculate the bidder's long-term post-acquisition performance. For example, measuring the long term performance of a bidder that was involved in a merger in 2005 requires data collected over the period 2006, 2007, 2008, and 2009. Second, the accounting rules related to disclosing executive compensation changed in 2006. Therefore, using 2005 and prior years for our executive compensation data assures us that the accounting standards of CEO compensation reports are consistent throughout all our observations.

We identify all US public firms which engaged in M&A transactions between fiscal year 2001 and 2005[4] from the SDC Platinum database. We require the deal size, announcement date, and effective date to be available for all observations and that the status of the deal is "Completed" rather than "Withdrawn" or "Pending". Further, we exclude from the sample all companies that are classified as financial or utility firms (SIC codes 6000-6999 and 4900-4999). The reasons are financial and utility firms are highly regulated industries, and they have more restricted M&A policies and different compensation properties, which are not comparable with firms in other industries. In order to avoid including mergers with economically insignificant impact, we require that a target's total market value is at least 5% of the acquirer's total market value measured four weeks prior to the announcement. Eventually, we limit our sample to a "clean set", which does not include the firms that have multiple M&As per year (Coakley & Iliopoulou, 2006) or have "overlap" (Harford & Li, 2007) with our long-term performance window. That is, if a firm completes more than one acquisition in one year, or another takeover is announced during the four years after completing the first acquisition, the firm is excluded as it is not possible to know whether the post-merger performance is from the first transaction or from the

[4] The dates in SDC platinum are in calendar year format. To match the M&A data with CEO compensation and firms' financial data, we obtain bidders' fiscal ending month from the Compustat and convert calendar year into fiscal year. Originally, we extract M&A events from calendar year 2000 to 2006; after the transformation, those happened before fiscal 2001 or after fiscal 2005 are removed.

second one. Including such firms may bias the results. We filter out the firms with CEO turnover during our sample period as it is hard to attribute the changes in CEO compensation to either their performance or to their personal characteristics. Family firms have unique agency problems and governance mechanisms. Therefore, firms which are identified as family firms in the Anderson and Reeb's (2004) dataset are also out of the scope of this thesis[5]. Lastly, all observations must be available in ExecuComp, Compustat, Center for Research in Security Prices (CRSP), and Thomson Institutional Holdings databases. Eventually, our sample has 268 merger events, which consist of 266 US firms during the period of 2001 to 2005. In addition, we also extract all available firms in the ExecuComp database from 2001 and 2005, which do not take any M&As, as the organic group to compare the growth of CEO compensation from M&A with the internal growth in model 5.1.

The data of bidder CEO compensation and board of directors of the above firms are extracted from the ExecuComp, which provides us with annual compensation components and detailed CEO personal information, such as name, age, title, and whether the CEO is a board number. Bidders' fiscal annual financial data are collected from the Compustat database, while daily as well as monthly stock prices are derived from the CRSP database. We download each institutional investor's shareholding for each single bidder from the Thomson Institutional Holdings database.

4.2 Variable Descriptions

4.2.1 CEO Compensation

Our dependent variable is CEO annual compensation during the year when the acquisition was completed. Specifically, we look at the seven components of a CEO compensation: base salary (*SALARY*), bonus (*BONUS*), other annual payment (*OTHANN*), restricted stock grants (*STOCK)*, stock option grants (*OPTION)*, long-term incentive payment (*LTIP)*, and all other total compensation (*ALLOTHTOT*). In addition, we analyze the total compensation (*TOTAL*), measured by the sum of the 7 components (Almazan et al., 2005; Harford & Li, 2007). Other annual payment and all other total compensation are cash payments or cash-equivalent benefits,

[5] The data can be obtained from their website http://astro.temple.edu/~dreeb/Working2.html. We assume family firms preserve their ownership structure, and we use the most recent year, 1999, data in Anderson and Reeb's (2004) dataset to identify family controlled corporations. Furthermore, we also exclude the firms which are defined as family firms in their last available year. Results are quite stable and similar whether family firms are identified by the last year or the last available year.

such as perquisites and debt forgiveness[6], which cannot be explicitly categorized into other groups. The grant date value is used to reflect the value of restricted stocks granted in that year while the value of granted stock options is computed by Standard & Poor's Black-Scholes methodology. Long-term incentive plan refers to a reward system, which aims to align the interests of executives and shareholders. Under this plan, CEO compensation is tied to firm long-term (generally three years) performance. Executives can receive the entire payments only if they fulfill the profitability conditions or other objectives that firms want to achieve in the future.

To determine whether the value of CEO compensation is independent of performance, we classify the 7 components into cash-based compensation and equity-based compensation. Cash-based compensation is comprised of cash, salary, other annual payment, and all other total compensation, while equity-based compensation includes restricted stock grants, stock option grants, and long-term incentive payments[7]. We compute the ratio of cash/equity-based compensation to the bidder CEO total compensation in the completion year and one year prior and make comparisons of the ratios between those two years. 5% change is used as a rule of thumb in our research to determine whether the bidder CEO compensation structure shifts to higher portion of cash or equity or remain the same in M&A. If the percentage of CEO cash/equity-based compensation after the takeover exceeds the percentage in the year prior to the merger transaction by more than 5%, we count this event as a change in the compensation structure. The observation with more than 5% increase in the percentage of CEO cash-based compensation is classified among the events where the CEO favours a cash payment. All such observations are placed in the cash group. We examine the impact of such group on compensation by making the vairiable *TYPE* equal to "CASH". Likewise, if the ratio of CEO equity-based compensation grows by 5% or more after M&A, this observation is grouped into a subset that we call the equity group, and we label it as "EQUITY" under the variable *TYPE*. On the other hand, if the difference is less than 5%, then the variable *TYPE* is "NEUTRAL", meaning no significant change in compensation structure takes place.

[6] The definition and items under each compensation component are according to the manual of the ExecuComp database.

[7] Murphy (1999) considers restricted stock and option grants to be equity, while Datta et al. (2001) only use new stock option grants to proxy for equity-based payment. However, the characteristics of long-term incentive payments are similar to those of equity grants. Therefore, it is more proper to incorporate it into the calculation of equity-based payment.

4.2.2 Performance

4.2.2.1 Short-term Announcement Period Abnormal Return

We use the abnormal return surrounding the acquisition announcement date as a proxy for a firm short-term stock performance. We measure the cumulative abnormal return (CAR) as the difference between the actual return on the stock and the expected return estimated using the traditional market model:

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad 4.1$$

Where $R_{i,t}$ is the stock return of company i on day t obtained from the CRSP database.

$R_{m,t}$ stands for the stock return of the market portfolio m on day t obtained from the CRSP database.

α_i and β_i are regression coefficients which capture the relationship between an individual stock return and market return.

From the regression in 4.1, we can get α and β for each company. In 4.2, we use the coefficients α and β, the firm stock return, and the market return to obtain the abnormal returns by subtracting the expected returns from the real returns. Abnormal return reflects the impact of the newly released information on the fluctuation of stock price around the announcement day. Formally, the abnormal return is calculated as:

$$AR_{i,t} = R_{i,t} - (\alpha_i + \beta_i R_{m,t}) \quad 4.2$$

Where $AR_{i,t}$ is the abnormal stock return of company i on day t, $(\alpha_i + \beta_i R_{m,t})$ represents expected stock return for company i on day t, and $R_{i,t}$, $R_{m,t}$, $ß_i$, and α_i are as defined in equation 4.1.

In order to be consistent with previous studies of M&A and executive compensation (Grinstein & Hribar, 2004; Coakley & Iliopoulou, 2006; Bugeja et al., 2012; Datta et al., 2001), we choose a two-day event window (-1, 0), consisting of one day prior to announcement and the announcement day, to construct our cumulative abnormal returns, *CAR2*:

$$CAR_{i,(-1,0)} = \sum_{-1}^{0} AR_{i,t} \quad 4.3$$

4.2.2.2 Long-term Market Adjusted Return and Calendar-time Abnormal Return with Fama-French Model

What constitutes as the optimal measurement of post-event long-term performance has caused much controversy in the recent decades. Although the buy-and-hold (BAH) method and the Calendar-time Abnormal Return (CTAR) approach are widely used in prior studies, both of them have weaknesses. The buy-and-hold abnormal return deals with individual stocks. Except for the event-dependence issue (Mitchell & Stafford, 2000), the results generated from BAH is also subject to the choice of the beginning (buy) date and end of holding date. Therefore, we propose a modified approach to proxy for each bidder's stock performance – the long-term market adjusted return *(LTRETURN*). As in Gao (2010) and Datta et al. (2001), a three-year period is employed to measure long-term performance.

$$\text{LTRETURN} = R_i - R_M \quad (4.4)$$

Where R_i is the stock return of company i over three years and R_M is the three-year market return. Moreover, R_i and R_M are structured using the following equations:

$$R_i = \frac{P_i^1 + D_i - P_i^o}{P_i^o} \quad (4.5)$$

where $P_i^o = \frac{1}{T}\sum_{t=1}^{t=T} P_{i,t}^0$ and $P_i^1 = \frac{1}{T}\sum_{t=1}^{t=T} P_{i,t}^1$

$$R_M = \frac{P_M^1 + D_m - P_M^o}{P_M^o} \quad (4.6)$$

Where P_M^o and P_M^1 are the monthly value-weighted price index. P_i^o is the average of the daily stock price of company i over the starting one month while P_i^1 is the average of the daily stock price of company i over the ending one month. D_i and D_m are the monthly dividend for company i and the market portfolio during the three years.

The starting month of *LTRETURN* is the first calendar-month immediately after the deal completion (t=1) and the last month is three years after the completion (t=36). Since it take some time for the bidders to adjust their organizations and operating strategies to achieving synergy after taking over another firm, to avoid the unclear impact of M&A, we choose another measure *LTRETURN _1*, which starts one year after the completion of the merger (t=13) and ends three years later (t=48), in robustness check. Stock prices are extracted from the CRSP database, and market price indices are exported from the Compustat.

Alternatively, in light of the introduction of calendar-time portfolio abnormal return (Fama, 1998; Mitchell & Stafford, 2000), we also compute the Calendar-time Abnormal Return (CTAR) with Fama-French Model for different groups to compare their performance. The model is:

$$R_{p_i,t} - R_{f,t} = \alpha + \beta(R_{m,t} - R_{f,t}) + s(\mathrm{SMB}_t) + h(\mathrm{HML}_t) + \varepsilon_{i/p,t} \quad 4.7$$

Where $R_{i/p,t}$ is the return of Portfolio p_i at time t, $R_{f,t}$ is the risk free rate at time t, and $R_{m,t}$ is the market return at time t. Hence, $R_{p_i,t} - R_{f,t}$ is the excess return of Portfolio p_i, while $R_{m,t} - R_{f,t}$ is the market excess return or premium. SMB and HML control the size and book-to-market value effects respectively. α represents the abnormal return, which we are interested in. The abnormal returns are denoted as *CTAR* (1,36) and *CTAR_1* (13, 48).

4.2.3 Transaction Characteristics and Executive Efforts

Based on the literature of Grinstein and Hribar (2004) and Bugeja et al. (2012), we use the log value of the number of days to complete the deals (*TIME*), the dummy variable whether the target and the bidder are in the same industry (*DUM_DIVERSITY*), and the method of payments (*DUM_SHAREONLY*) to capture the transaction characteristics and thus managers' efforts made in M&A. When a bidder acquires a target in a different industry (with different 4-digit primary SIC number[8]), then *DUM_DIVERSIFY* equals to 1; otherwise it takes on the value of 0. *DUM_SHAREONLY* is a binary variable which equals to 1 when the bidder finances M&A with only shares.

The time needed to complete a transaction proxies the size of the deals. It is expected to positively affect CEO compensation; however, whether the positive association is attricuted to the complexity of deal or the empire building is unclear. Moreover, there is also lack of consistent argument regarding whether acquiring a firm in the same industry needs more or less work than in a different industry (Harris, 1983; Cordeiro & Veliyath, 2003; Grinstein & Hribar, 2004). Diversification in M&A would reduce firm value in general as CEO may try to lower personal exposure to firm specific risks and put firm profitabily on the second order (Jensen, 1986; Agrawal & Knoeber, 1998). Thus, we expect diversification is associated with short investment horizon. On the other hand, we expect paying the target with euqity represents long investment horizon, as the firm short-term value is not the priority to conducting M&A.

[8] As a robustness test, we also used 2-digit SIC code, but the qualitative results remain unchanged.

4.2.4 CEO Power and Ownership Structure

The linkage with the critical internal governance committees gives the executive strong influence over the firm's decision making. Especially, if the CEO also takes the position of chairman of the board, then the CEO has significant power to approve the increase in the compensation packages (Crystal, 1991; Finkelstein & Hambrick, 1996; Gomez-Mejia, 1994; and Masulis, Wang, & Xie, 2009). We control for the excess power of the executive when she serves as chairman of the board by setting the dummy variable *DUM_CHAIRMAN* equals 1 when CEO also serves as a chairman of the board and 0 otherwise.

CEO's experience (*TENURE)* is also a standard proxy of managerial power (Mangel & Singh, 1993). The longer the time a CEO stays in the company, the more proficient the CEO will be in extracting personal benefits from the business. High prestige and rich experience enable CEO to have substantial negotiation power (Singh & Harianto, 1989) and to gain trust from the boards (Alderfer, 1986), which in return help CEO bargain for private benefits. We expect the impact of CEO tenure on post-acquisition compensation to be positive. *TENURE* is measured by the number of years between the date of becoming CEO and the effective date of M&A.

There is no consensus regarding the exact level of shares to distinguish large holders. A 5% cut off is widely used in the literature, such as Chang and Mais (2000), and Cordeiro and Veliyath (2003), but whether 5% equity holding is sufficient for institutional investors to monitor CEO compensation is different in the study of Riahi-Belkaoui and Pavlik(1993) and Mangel and Singh (1993). La Porta, Lopez-de-Silanes, and Shleifer (1999) also use 10% and 20% as the thresholds. To address the non-linear monitoring effects from of different concentrations of ownership (Yen & André, 2007), we divide the institution controlled firms between weakly-controlled and strongly-controlled firms. Only 23 firms in our sample do not have a single institutional shareholder who owns more than 5% shares and only 8 firms have 20% or more of their shares controlled by one institutional owner. The lack of sufficient observations could cause bias in regressions. To solve this issue we consider a firm that has 6% institutional ownership or less to be widely held while a firm that has above 6% institutional ownership to be under institutional control. If the firm has a single institutional shareholder controlling 6% of shares but less than 10%, we call it weakly institution controlled firm and denoted as *DUM06_INST*. If a single institution controlling 10% or more of a firm's shares, the firm is classified as strongly institution

controlled firms and named *DUM10_INSTI*.

4.2.5 Control Variables

In addition to the above factors, CEO compensation also depends on firm *SIZE,* performance, such as *ROA*, and *RETURN*, *SALES_GROWTH*, and firm' financial structure, *LEVERAGE*. We define *SIZE* as the logarithm of the firm's book value of total asset at the end of the fiscal year before deal completion. *ROA* is the ratio of the earnings before interest, taxes, depreciation, and amortization (EBITDA) over total assets. *RETURN* is the firm's fiscal year gross stock return, which is equal to the sum of the dividends paid during that fiscal year and the capital gains measured as the stock price at the end of the current fiscal year divided by stock price at the end of the previous fiscal year minus 1. *SALES_GROWTH* is the growth rate of sales per year.

5 METHODOLOGY AND EMPIRICAL FINDINGS

5.1 Statistical Summary Table

5.1.1 Are M&As Opportunities to Increase Executive Compensation?

The descriptive statistics of CEO compensation in the fiscal year of accomplishing takeover are presented in Table 1. The amount of each component of CEO compensation are outlined in Panel A. Bidding CEOs are generally awarded with a total of $4,395.61 thousand on average in the year of finishing M&A. It is obvious that salary, bonus, restricted stock grant, and stock option grant are the most significant elements of CEO total compensation, which are $657, $693, $435, and $2,250 thousand respectively. While the base salaries are less volatile, the deviations of the stocks and options relative to their means are greater than that of bonus.

[Insert Table 1]

Figure 1 further discloses the detailed percentage of each component. Similar to the findings in the study of Datta et al. (2001), the biggest component is stock options, which accounts for more than half of CEO total compensation, followed by bonus and salary. Overall, the sum of the equity component of payments is twice as much as the cash-based component.

[Insert Figure 1]

The change in CEO compensation from M&A, measured by the amount in the completion year minus the amount paid one year prior, is listed in Table 1 Panel B. Bidders in our sample are granted significantly more salary, bonus, and other payments but less stock-based compensation. However, the increases in cash compensation do not exceed the reduction in the value of stock options. Thus, on average CEO total compensation declines by $651.927 thousands, but the decrease is not significantly different from zero. This finding contradicts the literature which concludes that bidders offer their CEOs significantly higher compensation in the M&A year (Harford & Li, 2007). The possible explanations could be as follows: 1) We examine the sample means while Harford and Li (2007) compare sample medians. To make the numbers comparable, we also take the difference of two sample medians. The median of the changes in CEO compensation is $123.84 thousand as shown in panel B, which is consistent with the growth in median in the study of Harford and Li (2007). 2) The differences in sample construction criteria between our study and the literature may result in different observations[9], which in return may

[9] We look at CEO compensation in the completion year and one year prior whereas Harford and Li (2007) focus on CEO compensation in one year after completion and one year before the announcement. We employ 5% of bidders' market value as the threshold to distinguish significant target from small deal while Harford and Li (2007) use10%.

have different properties. 3) Our data covers a sample period which is different from the period covered by the data of Harford and Li (2007). Therefore, executive compensation could be affected by the macro conditions in the financial market.

We investigate further the impact of sample filters on our conclusions. First, we replicate the study of Harford and Li (2007) study based on their sample criteria and sample period, and then we apply their methodology to our sample period. We also work on Harford and Li's (2007) sample period under our sample selection standards to fully address the concerns about sample selection and time period issue. The explicit demonstrations of CEO compensations are listed in Table 2.

[Insert Table 2]

Strictly following the steps in the study of Harford and Li (2007) which tests the M&A events from 1993 to 2000[10], we find in our replication CEO total compensation in the year after the deal completion is about $5.26 million on average and the median total compensation of 283 observations is about $2.26 million[11], which is comparable to Harford and Li's (2007) findings. The univariate tests in Panel A disclose that salary, bonus, stock options, and all other total payments soar significantly, and the total compensation almost doubles after M&A.

In Panel B, we use the same sample period which is from 1993 to 2000 but we use our methodology to form a sample. The definition of crucial transaction under our sample selection criteria is relatively loose. That is, we require the transaction to be at least 5% of the bidder's market value instead of the 10% used by Harford and Li (2007) study. We end up with more events, and the mean executive compensation after M&A is almost $4.92 million, which is also close to that shown by Harford and Li (2007). Moreover, the average of CEO overall compensation rises significantly from $3.53 million to $4.92 million through M&A, and the increase is again statistically significant, verifying that what really matters in the direction and the significance of the change in CEO compensation is the time period rather than the differences

[10] Besides the time period, Harford and Li (2007) identify the deals whose values are at least 10% of bidders' market value at the end of the fiscal year prior to the announced as the significant transactions. They request no overlap or multiple M&A within two years. Excluding the firms that change their CEO between one year before the announcement and one year after the completion, they have 306 observations with the median of $3 million total compensation after the M&A activity.

[11] The median of CEO total compensation in our replication of the study of Harford and Li (2007) is not listed in table 2.

in the sample selection criteria.

To further conduct a robustness check of our hypothesis that the period matters, we employ the the approach in the study of Harford and Li (2007) to our sample period in Panel C. The number of observations is lower than that under our mythology. Salary, bonus, restricted stock, and stock option grants are still the major components of total compensation. The average of option grants is a little bit lower than half of the average of total compensation but much higher than other constituents. The sign and the significance of the changes in each component slightly differ from those in our sample. However, the growth of the total compensation through M&A remains insignificantly different from zero.

In summary, CEO total compensation following M&A mounts up from 1993 to 2000, which is in line with the traditional understanding that increased size through M&A enlarges compensation. However, over the period from 2000 to 2005, the total payments received by CEO after M&As do not deviate significantly from the total payments received in the year prior to the transactions. Although CEO cash compensation still goes up after M&A, CEO equity grants, especially stock options, distinctly shrink after M&A. This phenomenon can be explained by the M&A wave, the stock market, and the proliferation in the number of firms offering option compensation in 1990s.

The drastic increase in the option-based compensation to CEOs of US companies during the 1990s has attracted the attention of many scholars. They attribute the sudden significant changes to the influence of the accounting standards, tax regulations, financial market, and corporate governance. Murphy (2002) suggests that CEO compensation in large, smaller, and high-tech companies all increases and the increases mainly come from options.

Murphy (2002) proposes a “perceived-cost” hypothesis as an explanation to the proliferation of stock option payments. The auther proposes that the “perceived” value, instead of economic value, is used for the design of CEO compensation. Therefore, options are undervalued by both corporations and undiversified managements, and options are overpaid. After the introduction of the Internal Revenue Code Section 162(m) in 1993, firms switched CEO compensation from cash to equity-based payments (Perry & Zenner, 2000) to avoid deducting excessive amounts from income as expenses and reduce the negative impact that the vast executive compensation has on firm value (Hall & Murphy, 2003).

On the other hand, the drawbacks of stock options are also recognized by some experts. Hall

and Murphy (2003) find that after reaching the peak in 2000 option grants begin to drop greatly. They argue that shifting towards more options is not appealing to all-level employee after 2000 when the stock market turned into cold, and the value of options is negatively affected by firm value. Moreover, Kolev (2008) proves that with stock options executive compensation is far more tied to firms' stock price. Thus, compensation depends on the entire financial market rather than individual performance. Therefore, in the bull equity market during the 1990s and especially the late 1990s, CEO total compensation booms. Afterwards, their payments drop with the financial market recession (Kolev, 2008).

Because of the bull market before 2000 and the tax advantages, options grants as well as total compensation increased overtime and thus soared after M&As. However, when the market settled down after 2000, investors realized options are not as efficient as they expected, and they tended to be rational in compensating CEOs with options after M&As. Further, during the period of 2001 to 2005, M&A activities were not sufficient for executives to bargain for more payments.

5.1.2 What Are the Characteristics of the Bidder Firms in Our Sample?

Table 3 addresses the properties of the explanatory variables and the control variables in our models. Panel A reports that the average bidder size before M&A is about $3,244 million. Panel B shows that the market in general does not take the announcement of M&A as a good signal, because the average abnormal return in the 2-day window is -0.004, which is comparable with other research, such as Datta et al. (2001) and Grinstein and Hribar (2004). However, in the long-term, the market tends to favor M&A, and the abnormal returns become positive. When allowing for one year of integration, the three year abnormal return reaches 0.003 and the three year adjusted buy-and-hold period return is 0.168. On the other hand, Panel C reports that the average value of the acquired targets[12] is $1.199 billion, suggesting that bidders are able to enlarge their size by 40% through M&A, which is very close to the study of Guest (2009) that the relative size of the target is 33% of the total bidders. Moreover, M&A transactions take from 0 days to 486 days (1.33years) to completion while the average time to completion is approximately 74 days (2 and a half months), which supports the statement that M&As are the most significant and complicated corporate capital investments. The percentage of cross-industry M&As, which are

[12] The transaction value is not included in any regressions because it is highly correlated with bidder firm size and time to completion as well. However, it is an important measure to reflect how big the bidders in different groups aim to acquire. Thus, we put it in the summary statistic table.

intended for diversification purposes, is 55.6%, which is a bit higher than that in Grinstein and Hribar's (2004) sample but similar to the result of Harford and Li (2007). The percentage in our sample is higher because we use a four-digit SIC code instead of two. We also test two-digit SIC code for our classification, but the results are qualitatively similar; hence, we do not report the results here. In addition, only 9% of acquirers pay the targets with only shares. Our sample shows that 38.1% of bidders have at least one institutional investor who holds between 6% and 10% of the outstanding shares. In contrast, 45.5% of the firms have at least a shareholder owning more than 10% of the outstanding shares.

[Insert Table 3]

5.1.3 Do the Cash, Neutral, and Equity Groups Differ from Each Other?

Table 4 compares the performance and characteristics of the firms in the cash, neutral, and equity group. The table shows that the bidder size, measured by the book value of the assets at the fiscal year end prior to M&A, does not vary significantly among the cash, neutral, and equity groups. However, the targets in cash group are more than two times bigger on average than in the equity group. The average time needed to complete the deal is the shortest in the cash group. In terms of accounting performance, the ROA of the firms in the cash group is the worst and the degree of financial leverage is the lowest for this group as well, implying that CEOs whose compensation after mergers shifts to a higher percentage of cash are more likely to pursue their empire building in M&A. Despite the insignificant market reaction during the announcement of M&A, the equity group has a higher 3-year stock return starting immediately after the completion and from one year after the completion as well. One possible explanation is that equity compensation seems to inspire CEOs to take value-enhancing acquisitions and thus is usually associated with better long-term performance (Datta et al., 2001). Alternatively, CEOs could use their insider information to estimate firms' future value and then choose the form of compensation. The above analyses suggest that within firms in the cash group larger compensation is associated with bigger size rather than good firm performance. Panels D and Panel E indicate that neither managerial power nor large institutional shareholders has direct association with the changes towards more cash or equity payments in M&A.

[Insert Table 4]

5.1.4 Do the Widely Held, Weakly Institution Controlled, and Strongly Institution Controlled Groups Differ from Each Other?

Table 5 compares the levels of post-acquisition compensation among the institution controlled firms and widely held firms. Similar comparisons are conducted for the change in compensation through M&A.

[Insert Table 5]

Panel A suggests that cash and equity compensations are the highest in the widely held firms and the lowest in the strongly institution controlled firms. CEO bonus compensation in widely held firms is almost twice as much as that the strongly institution controlled firms but the stock options compensation does not seem to vary too much. When we look at the changes in CEO compensation in each group, Panels B, C, and D suggest that though the decreases in CEO total compensation alleviate in the group with intense institutional ownership, none is significantly different from zero. In the widely held firms, the cash-based compensation jumps up by $630.869 thousand, but the increases are much lower or insignificant in the institution controlled groups. The option compensation drops greatly in the widely held firms while in institution controlled firms the changes are insignificant.

As shown in Table 6, both the book value of the bidders and the value of the transactions within the widely held group are several times higher than those in the institution controlled groups. The widely held firm can increase its capitalization by 45.63% after the M&A, while the weakly and strongly institution controlled firms would only enlarge their size by 34.74% and 27.26% respectively. Thus, the widely held firms aim to build empire, which can be captured by the absolute and relative size of the transactions. Surprisingly, the market does not tend to favour the announcement of M&A made by any groups of firms, but the strongly institution controlled firms have the best stock performance from one year after the M&A to the following 3 years. More analysis will be conducted in the next session.

[Insert Table 6]

5.2 Regressions and Results

5.2.1 Is the Increase in CEO Compensation in Widely Held Firms and Institution Controlled Firms the Same ? (Hypothesis 1)

We start our exploration of CEO compensation by verifying the change in CEO compensation through M&A in different groups as well as different years and comparing the change in M&A firms with the organic group. Eventually, 266 M&A firms and non-M&A ExecuComp firms between 2001 and 2005 are used to examine the joint impact of M&As and institutional ownership on the level of CEO compensation. Model 5.1 is used for this analysis:

$$\begin{aligned} \mathrm{Comp_{it}} = {} & \alpha + \beta_1 * \mathrm{size_{it-1}} + \beta_2 * \mathrm{ROA_{it}} + \beta_3 * \mathrm{ROA_{Growth_{it}}} \\ & + \beta_4 * \mathrm{Sales_{Grwoth_{it}}} + \beta_5 * \mathrm{Return_{it}} + \beta_6 * \mathrm{MTBV_{it}} \\ & + \beta_7 * \mathrm{Dum\_ma_{it}} + \beta_8 * \mathrm{Dum06\_insti_{it}} + \beta_9 * \mathrm{Dum10\_insti_{it}} \\ & + \beta_{10} * \mathrm{Dum\_ma\_dum06} + \beta_{11} * \mathrm{Dum\_ma\_dum\_10} \\ & + \mathrm{Year\_fixed} + \mathrm{Industry\_fixed} + \varepsilon_{it} \end{aligned} \qquad 5.1$$

The dependent variable in Model 5.1 (*COMP)* is CEO compensation received in year t. The set of control variables are based on the studies of Grinstein and Hribar (2004), Coakley and Iliopoulou (2006), and Bugeja et al. (2012)[13]. *SIZE* is the book value of the total assets at the beginning of the year. *ROA* is defined as the ratio of earnings before interest, taxes, depreciation, and amortization *(EBITDA*) to the book value of total assets while *RETURN* is the raw stock return of bidders i at the fiscal year end t. We estimate *ROA_GROWTH* and *SALES_GROWTH* are the growth rates of ROA and sales respectively. *MTBV i*s the market to book ratio. *DUM_MA* identifies the M&A events. It equals to 1 if the firm completes a takeover in year t and zero otherwise. *DUM06_INSTI* indicates institution controlled firms with at least one shareholder who owns between 6% and 10% of shares and *DUM10_INSTI* indicates institution controlled firms with 10% or more ownership of shares. *DUM_MA_DUM06* and *DUM_MA_DUM10* are the products of the merger dummy variable and institutional ownership dummy variables.

Before running the regression, we test the correlation coefficients of the explanatory variables in Model 5.1. Table 7 illustrates the correlations between the various pairs of variables are

[13] Grinstein and Hribar (2004), Coakley and Iliopoulou (2006), and Bugeja et al. (2012) also include margin and the growth of margin among the control variables. However, we find those two variables are highly correlated with ROA and ROA_Growth (the correlation coefficients are 0.9 and 0.8). To avoid possible multicollinearity problem, we drop margin and the growth of margin but add MTBV to substitute their effects.

between 0.124 and -0.366. Stock return (*RETURN*), *ROA*, and *MTBV* measure firm performance in stock, accounting, and growth, Thus they are positively related to each other. High leverage is associated with big size, low ROA and lower return, as bigger companies are able to raise and manage debt. High level of debt produce more interest payments and thus more financial pressure. In the extreme case of overwhelming debt, firms could be forced into bankruptcy. Therefore, lower profits are generated in the firm with high leverage.

[Inset Table 7]

The regressions of CEO compensation and compensation components are tested and listed in the different columns in Table 8. Following the literature, we test CEO total compensation, bonus payments, salary plus bonus, stock option, and stock plus option grants in five columns. The *SIZE*, *ROA, SALES_GROWTH, RETURN,* and *LEVERAGE* are the dominant determinants of CEO compensation and compensation constituents. A bigger organization (*SIZE*) and higher growth opportunity (*SALES_GROWTH*) demand more knowledge and energy (Harford & Li, 2007) from the CEO. The CEO should be rewarded for better performance (*ROA* and *RETURN*) (Murphy, 1999). High *LEVERAGE* exposes managers to more risk and the CEO should be rewarded for tolerating this risk.

[Inset Table 8]

The coefficient of *DUM_MA* is positive and significant in almost all regressions except for the sum of stock and option grants, suggesting that CEOs in widely controlled firms on average receive substantially higher compensation in terms of bonus, salary plus bonus, stock option grants, and total compensation through acquiring other firms than through internal growth. The high growth of compensation in M&A is consistent with the findings by Girma et al. (2006), Guest (2009), and Bugeja et al. (2012). However, the slope coefficients of *DUM06_INSTI* and *DUM10_INSTI* are insignificant in all regressions. The interaction terms, *DUM_MA_DUM06* and *DUM_MA_DUM10,* have significant impacts only on the regression of CEOs bonus payments and salary plus bonus payments. The F test of the joint effects of institutional dummy variables and their interaction terms shows that CEO cash compensation after M&A is significantly lower in the institution controlled firms than in widely held firms.

After controlling for performance and firm-specific characteristics, the indications from the regressions are in line with what we find in Table 5. In diffused ownership firms, CEOs bargain for higher cash compensation after conducting takeovers. However, compared with the widely

held firms, the weakly and strongly institution controlled firms reduce the increase in CEO bonus compensation by $451.770 and $337.314 thousands respectively, and the reduction effects are more remarkable in CEO salary plus bonus packages. This finding confirms the study of Hartzell and Starks (2003) that institutional investors reduce the level of CEO salary. Meanwhile, CEO equity compensation in the institution controlled firms does not differ from the comparable compensation in the widely held firms as none of the interacted terms is significant in the regression of equity compensation.

One possible explanation is that, large institutional shareholders conduct their duties of preventing top managers from extracting rent in M&A by controlling CEO cash compensation and by simultaneously maintaining or increasing CEO equity-based incentive payments (Riahi-Belkaoui & Pavlik, 1993, Hartzell & Starks, 2003). Under this interpretation, shifts in CEO compensation structure in M&A should be influenced by institutional ownership, or the linkage between CEO equity payments and firm short-term or long-term performance should exist, as a result of large institution shareholders' monitoring. An alternative interpretation could be that institutions are not able to tell the impact of M&As on firms' future development right after the transactions. Therefore, CEO equity compensation is adjusted in several years according to long-term performance instead of in the completion year.

Before conducting more investigations, we examine the monitoring effects of institutional large shareholders one more time in Model 5.2. In this analysis, we focus only on CEO compensation in M&A years by taking into account performance surrounding the announcement of the event, transaction-level characteristics, managerial power, and the control variables identified by Model 5.1 to be determinants of CEO compensation. Following the method in Grinstein and Hribar (2004), Coakley and Iliopoulou (2006), and Bugeja et al. (2009), we inherit the significant explanatory variables of CEO compensation from the previous model to account for firm-specific characteristics. CEO compensation in M&A should also be affected by the characteristics of transactions and corporate governance associating with the deals. We expect institution dummies to remain positive and significant in those cross-sectional regressions in Model 5.2.

$$\text{Comp} = \alpha + \beta_1 * \text{performance} + \beta_2 * \text{transaction-level characteristics} + \beta_3 * \text{power} + \beta_4 * control + \beta_{insti} * D_{insti} + \text{Year\_fixed} + \text{Industry\_fixed} + \varepsilon_{it} \quad (5.2)$$

The dependent variables are CEO total compensation, bonus only, salary plus bonus, option only, and stock plus option in the completion years. Performance variables include short-term performance *CAR2* and long-term performance *LTRETURN*. Transaction-level characteristics are the time to complete (*TIME*), the indicator whether the target and the bidder are in the same industry or not (*DUM_DIVERSIFY*), and the method of payment (*DUM_SHAREONLY*). Managerial power variables include the dummy variable which identifies whether the CEO is also a chairman (*DUM_CHAIRMAN*) and the CEO's tenure (*TENURE*). Institutional dummy variables again are *DUM06_INSTI* and *DUM10_INSTI*. Firm size (*SIZE*), *ROA*, *SALES_GROWTH*, *RETURN, LEVERAGE,* year and industry fixed effect are the control variables inherited from Model 5.1.

The Pearson correlations analysis in Table 9 suggests 30 statistically significant correlation coefficients, with the highest being approximately 0.474 between *LTRETURN* and *TIME* and the lowest -0.256 between *ROA* and *DUM_SHAREONLY*. The results of the regressions are summarized in Table 10.

[Insert Table 9]

[Insert Table 10]

Table 10 shows that the significant determinants of CEO total compensations are firm size, which is consistent with the literature (Roberts, 1956; Simon, 1957; McGuire et al., 1962; Rosen, 1982; Gomez-Mejia et al., 1987; Baker et al., 1988; Murphy, 1999), and whether the method of payment in M&A is shares only or not.

CEO cash compensation is positively associated with company size. The complexity of the deal, proxied by the time to complete the transactions, is also a determinant of the cash compensation. This result is in line with Grinstein and Hribar (2004). When firms are diversifying through M&A, their CEOs' bonus increases accordingly but their options are reduced at the same time. The result is consistent with the theory of options which indicates that the value of options is positively related to the volatility of the underlying asset. As diversifying takeovers are intended to reduce volatility, this theory predicts that diversifying transactions are wealth-reducing transactions for CEOs who hold significant options. Thus, a diversifying

transaction may lead a CEO to prefer cash over equity-based compensation.

Our results also show that when managers use only equity to finance M&A, they receive higher combined stock and option compensation packages. Different from cash financing, equity financing does not require cash flow and thus does not require new debt issuing, which could be a burden due to the interest payments and lead firms to financial distress and perhaps bankruptcy in the extreme situations (Ramaswamy & Waegelein, 2003). Even though the market takes equity financing as a negative signal to a firm's valuation in the short-run, if the bidder takes this opportunity to enjoy a lower cost of M&A, firms will benefit from it in the long-run. Datta et al. (2001) show that firms which pay targets with only cash experience worse long-term performance than the bidders who pay with stocks or a combination of stocks and cash. Thus, managers who finance the transactions with only shares prefer equity payemnts.

We do not find any evidence that CEO compensation is linked to firm performance. On the other hand, CEOs receive higher salary and bonus when they serve as chairmen of the board, as the coefficient of *DUM_CHAIR* is positive and significant. The coefficients of institutional ownership dummy variables, *DUM06_INSTI* and *DUM10_INSTI*, are negative and significant in the regressions of the bonus and salary plus bonus. In the presence of weak institutional shareholders, CEOs are granted with $319.799 thousand less in bonus and $318.297 thousand less in sum of salary and bonus payments than in the widely held firms. If the firms are strongly controlled by institutional shareholders, those firms pay $431.770 thousand less in bonus and $414.023 thousand less in salary and bonus to their CEOs than widely held firms. Our results are in line with the study of Hartzell and Starks (2003) that CEO compensation is reduced in concentrated institutional ownership as well as the study of Mangel and Singh (1993) that institutional investors reduce CEO cash compensation. Although the amount of cash payments in terms of bonus and salary in M&A can be effectively controlled by large institutional shareholders, CEO equity compensation and total compensation in firms with concentrated institutional ownership are not significantly different from the comparable compensation components in widely held firms. We confirm that the presence of large institution shareholders could reduce the increase in CEO cash payments but not equity payments in M&A.

5.2.2 Is CEO Compensation Linked to Performance in Widely Held Firms and Institution Controlled Firms? (Hypothesis 2-4a,d)

So far the results indicate that large institutional shareholders control CEO cash compensation. However, we do not know whether institutional ownership increases or reduces CEOs' motivation in M&A or whether managerial power also plays an important role or not. If the large institution shareholders take charge of the design of CEO compensations, the increase should come from the boost in firm performance. If managerial power dominates, we should not find any relations between payments and performance measured by either market reaction or long-term stock return. Thus, we use interacted variables between short-term/long-term performance with institutional dummies respectively in Table 11 and 12 to differentiate the pay-for-performance relations in institution controlled firms from widely held firms.

$$\begin{aligned} \text{Comp} = {} & \alpha + \beta_1 * \text{performance} + \beta_2 * \text{transaction-level characteristics} + \beta_3 * \text{power} \\ & + \beta_4 * control + \beta_{insti} * \text{D}_{insti} + \beta_{insti2} * \text{D}_{insti} * \text{performance} \\ & + \text{Year\_fixed} + \text{Industry\_fixed} + \varepsilon_{it} \end{aligned} \quad (5.3)$$

[Inset Table 11]

[Inset Table 12]

In Table 11, we use *CAR2_DUM06* and *CAR2_DUM10*, which are respectively the products of short-term performance CAR2 and institution dummy variables *DUM06_INSTI* and *DUM10_INSTI*. Both of them are positive and significant in the regressions of CEO cash compensations, while the coefficients of CAR2 are negative and significant. Since the results in table 5 indicate that the short-term performance in widely held firms is negative but insignificant, the negative coefficients of CAR2 on CEOs bonus and salary plus bonus suggest that although the market does not react positively to the announcement of M&As in widely held firms, CEOs still receive more cash after the deals. On the other hand, in weakly institution controlled firms, the linkages between short-term performance and bonus increase significantly by 5,076 and the relation with salary plus bonus payments increase significantly by 5,916. Though the increases are less in strongly institution controlled firms, the linkages are still positive and significant to conclude that the association between cash payments and short-term performance is positive, verifying that the pay-for-performance sensitivities are enhanced in institutional ownership (Hartzell & Starks, 2003). Besides, we confirm that the relation between the monitoring effects and the concentration of institutional ownership is non-linear (Yen & André, 2007).

However, again, we do not find any significantly association between large institutional shareholders and CEO equity compensation, as none of the interacted terms or the institution dummies is significant. Since equity payments motivate managers' behaviour in the long-term, we substitute the interacted terms with the products of firm long-term performance and institution dummy variables, named *LTRETURN_DUM06* and *LTRETURN_DUM10* in Table 12. The relations do not exist in either widely held firms or institution controlled firms. Thus, there is no indication that large institutional shareholders change CEO equity compensation after M&A to quickly and effectively linked to firm long-term performance.

5.2.3 Is Bidders' Long-term Performance Predictable from Market Reactions? (Hypothesis 5)

One proposal of the lack of large institutional shareholders' control over CEO equity compensation in the completion year could be that shareholders as outsiders have no information to estimate the long-term impact of M&A on firm performance, unless the announcement day market reaction is a good indicator of long-term performance of the bidder. The relation between event-date abnormal returns and long-term stock returns is seldom directly tested. Harford and Li (2007) claim no correlations, but they neither provide any evidence nor illustrate how they test it. Therefore, we use Model 5.4 to explore the relation in a set of regressions:

$$\text{Long-term performance} = \alpha + \beta_1 * \text{short-term performance } (+\beta_2 * \text{control }) \quad (+\text{Year\_fixed} + \text{Industry\_fixed}) + \varepsilon_{it} \qquad 5.4$$

The bidder's post-acquisition long-term performance in Model 5.4 is *LTRETURN,* while the cumulative abnormal return within two days (CAR2) proxies for short-term performance. Control factors include size (*ME*-market value of equity) and book-to-market ratio (*BE/ME*-the ratio of the book value of equity to the market value of the equity) based on Fama and French (1993). In addition, we control for the year-fixed effects and industry-fixed effects. The results are listed in Table 13.

[Insert Table 13]

We start our regression without controlling for size, book-to-market ratio, year-fixed effects, and industry-fixed effects. The result is reported in the first column of Table 13. The intercept coefficient is 0.104 and is significant at the 5% level, but the slope coefficient, -0.158, is not significantly different from zero. Moreover, the probability of F-value is 0.851, much greater

than 10%, suggesting that the goodness of the fit of this regression is very low. In the next column, we add year- and industry-fixed effects to control for macro-economic and industry impacts. Nevertheless, the regression remains insignificant. In the third regression, we control for firm size and book-to-market ratio. The R-squared and adjusted R-squared increase slightly, but the probability of F-value is 0.145 still higher than 10%. Therefore, none of our results suggests a firm long-term post-acquisition performance is predictable from its short-term performance. Our finding is consistent to the study of Harford and Li (2007), which indicates that using announcement period abnormal returns and 3-year post acquisition returns as the proxies for performance generates totally opposite results. They also propose that long-term performance can more accurately reflect CEO performance and thus is a more appropriate measure for CEO compensation.

5.2.4 Does Managerial Power Affect CEO Compensation? (Hypothesis 2-4 b,c)

We find that in institution controlled firms, positive market reaction would trigger the growth of CEO cash compensation. However, the driving factors behind the growth of CEO options and stocks are not clear. In Model 5.5, we examine whether managers use their controlling power in the board to ask for more compensation in different ownerships

$$\begin{aligned} \text{Comp} = \; & \alpha + \beta_1 * \text{performance} + \beta_2 * \text{transaction-level characteristics} + \beta_3 * \text{power} \\ & + \beta_4 * control + \beta_{insti} * \text{D}_{insti} + \beta_{insti2} * \text{D}_{insti} * \text{power} \\ & + \text{Year\_fixed} + \text{Industry\_fixed} + \varepsilon_{it} \end{aligned} \qquad 5.5$$

[Insert Table 14]

In our previous regressions, we show that CEO duality has strong impact on the increase in CEO cash compensation through M&A, which is in line with the findings by Grinstein and Hribar (2004) and Core et al. (1999) that CEO duality increases CEO bonus and salary payments. However, when we decompose our sample into widely held firms and institution controlled firms in Table 14, the significant effects disappear. Despite the insignificant coefficients of *DUM_CHAIR_DUM06* and *DUM_CHAIR_DUM10* in all five regressions, the F-test of institution dummy variables and interactions shows that the joint effects are negative and statistically significant in the regression of CEO cash compensation. Compared with diffused firms, large institutional shareholders who own between 6% and 10% of firms' total shares will reduce their CEO bonus compensation by $407.641 ($165.910+$241.731) thousand. The

reduction in bonus is $487.671($335.645+$152.026) thousand in firms with 10% and plus concentrated institutional ownership. The same effects could also be found in the CEO salary and bonus payments. However, institutional shareholders do not control mangers' rent extraction from equity compensation.

Taking all the information in Table 11, 12, and 14 together, we can conclude that large institutional shareholders significantly limit the increases in CEO cash compensation through M&A. Moreover, large institutional shareholders reduce extraction of cash via CEO influence over the boards and enhance the effectiveness of performance rewarding devices. In institution controlled firms, CEO cash compensation is positively related to market reactions to the announcement of M&A instead of managerial power. In widely held firms, CEOs still receive more cash even when the performance is bad. Intense institutional ownership oversees CEO cash compensation, and the monitoring effect is slightly different in different levels of concentrations. The reduction in CEO cash compensation is lower but the pay-for-performance is higher in weakly institution controlled firms than those in strongly institution controlled firms. However, institutional ownership does not seem to affect CEO equity grants in the completion year. The lack of such control could be justified on the basis that it is difficult to predict the firm long-term performance right after a merger or an acquisition, because our analysis shows that announcement-day market reactions are not predictors of long-term performance.

5.2.5 Which Factors Affect the Changes in CEO Compensation Structure?

5.2.5.1 Multinomial Logistic Regression

We examine whether institutional ownership also affects CEO compensation structure. We track the shifts of the structure and investigate the determinants of the shifts in M&A using multinomial logistic regressions Model 5.6:

$$\begin{aligned}\text{Type}= \quad & \alpha + \beta_1 * \text{performance} + \beta_2 * \text{transaction-level characteristics} + \beta_3 * \text{power} \\ & + \beta_4 * control + \beta_{insti} * \text{D}_{insti} + \beta_{power} * \text{D}_{power} * \text{long-term performance} \\ & + \text{Year\_fixed} + \text{Industry\_fixed} + \varepsilon_{it}\end{aligned} \qquad 5.6$$

Dependent variables *TYPE*[14] in Model 5.6 includes cash, neutral and equity three categories. Since we are interested in the changes in compensation structure and the determinants of the changes, we set the neutral group to be the base group in the multinomial logistic regeression. The control variables are the same as in Model 5.2. The product of CEO power and long-term performance is noted as *LTRETURN_CHAIR*. It reflects the impact of CEO power on selecting between cash or equity-based on their inside information about the firm long-term prospects. We expect it to be negative in the regression of *CASH* and positive in the regression of *EQUITY*. If large institutional shareholders control the design of CEO compensation contracts as predicted by the traditional theory, institution dummy variables should be negative (positive) in the regression of *CASH* (*EQUITY*) so that more incentives could be provided. The results are reported in Table 15 Panel A.

[Insert Table15]

According to Table 15 Panel A , neither large institutional shareholders nor CEO duality along with their expectations of firm long term performance have impact on changes in CEO compensation structure, as the coefficients of *DUM06_INSTI*, *DUM10_INSTI*, and *LTRETURN_CHAIR* are not significantly different from 0 in the regression of *CASH* or *EQUITY*. The structure of CEO compensation tends to be more stable when the CEO stays longer in a firm. Thus, the coefficients of *TENURE* are negative in both regressions. Managerial power enables CEOs to extract cash by increasing the likelihood of having heavier weight of cash compensation in M&A regardless of their performance. *ROA* is negatively related with the likelihood to favour cash over equity. CAR2, on the other hand, enhances the chances to switching for more cash as cash compensation is attached to short term performance. In a large company, CEOs are less like to increase the percentage of their equity compensation in M&A, while leverage accelerates the tendency to have more equity.

5.2.5.2 Two-stage Regression

We propose that managers would favor a type of their compensation based on their evaluation of the impact of M&A on firm stock price in the long run. However, CEO compensation strucute

[14] We also use 10% to define cash, netural, equity groups, but the significance of the results in multinominal regressions and the two-stage regressions does no change.

could influence the management incentive in M&A as well to improve firm future value or to benefit themselves. Datta et al. (2001) find that firms who compensate their CEOs with higher percentage of equity have better 3-year post-acquisition performance. Based on the study of Datta et al. (2001) and Gao (2010), long-term performance is a function of firms' characteristics, corporate governance, CEO compensation, and M&A deals. To test whether the compensation structure affects firm long-term post-acquisition performance, we run the regression of firm long-term post-acquisition performance in our sample, but our results suggest the change in the compensation structure is not a significant determinant. However, we do not rule out the possibility of suffering from endogeniety problem. To address this potential problem, we adopt a two-stage multinomial logistic regression in this section.

Lagged value is widely used as an instrument variable to solve the endogeniety. According to the study by Oler and Waegelein (2011) and Ramaswamy and Waegelein (2003), pre-acquistion performance is highly related to firm post-acquisition performance in the long-run. Therefore, We employ a 3-year performance before M&A (*LTRETURN_PRE*) as the instrumental variable and run the regression of post-acquisition performance on pre-acquisition performance after controlling for firm characteristics and year fixed effect. Then we put the fitted value of post-acquisition performance (*LTRETURN_F*) from the first stage as one of the explanatory variable in the second stage regression of CEO compensation structure while the rest of the variables remain the same as Model 5.6. The results are shown in Table 15 Panel B.

None of the coefficients of *LTRETURN_F, DUM06_INSTI, DUM10_INSTI,* and the interacted term of fitted long-term performance and CEO as chairman dummy *LTRETURN_F_CHAIR* is statistically significant. Compared with the regression in Panel A, only firm size, ROA, and CEO tenure remain their explanatory power. After we control for the potential endogenous variable, our results still indicate that neither institutional ownership nor CEO power manipulate the switch of one type of CEO compensation in M&A to the other one.

All of the above regression analyses confirm that in widely held firms, CEOs compensation increases more after M&A than through internal growth. Large institutional shareholders control the rapid growth in CEO cash compensation by tying the rewards to market expectations and by suppressing the growth from managerial power. However, institutional ownership does not show any better control over CEO equity compensation or over the changes in CEO compensation

structure in M&A. Managerial power along with the impact of M&A on firm long-term development is also not a determinant of the shifts of CEO compensation structure.

5.3 Robustness Tests

As discussed in Chapter 2, the measures of firm long-term performance all suffer different problems. Therefore, we use three different methods to calculate the long term returns and we repeat our tests to see whether the method of calculation affects our results. This analysis is presented in this chapter.

5.3.1 Allowing One Year for Reorganization

Merging two companies is a complicated task and it may take a long time for shareholders to realize the benefits. After acquiring another firm, the bidder needs to integrate operations, reduce redundant resources, and set up the appropriate divisions. In the meantime, the market will learn about the changes as they are announced and will re-evaluate the firm's prospects. We propose that allowing time for re-organization may provide a clearer picture of the impact of M&A on bidders' long-term performance.

We conduct a robustness test in which we measure long term performance over a three-year period starting one year after the completion of the merger. We realize that the time needed for integration varies from transaction to another and can range from few months to a number of years depending on the complexity of the transaction. However, we select a one year lag as during this time the bidders would have reported the audited annual financial statements and managements have had the opportunity to discuss the realized synergies and the anticipated changes in financial performance.

Specifically, we use *LTRETURN_1* to denote the lagged long term return. The computation of *LTRETURN_1* is similar to the computation of *LTRETURN* (Section 4.2.2.2) except that the period over which the long term return is measured is delayed one year. For example, if for a particular firm *LTRETURN* is measured over the period of January 15, 2003 to January 15, 2006, then *LTRETURN_1* would be measured over the period of January 15, 2004 to January 15, 2007. As there is no significant changes of the sign and the magnitude of coefficients of other explanatory and control variables from the robustness check, to save the space and to make it distinct, we only report the coefficients of the new proxies in Tables 16.

[Insert Table 16]

The signs and the significances of the institutional dummy variables *DUM06_INSTI* and *DUM10_INSTI* in the robustness check are the same as in Table 10. That is, only in the regression of *BONUS* and *SALARY_BONUS*, the coefficients are negative and significant. Even though we filter out the unclear impact of M&A transactions within one year immediately after the completions, large institutional shareholders still suggest their controlling of CEO overpayments in bonus and salary plus bonus. The reductions are stronger in firms with over 10% institutional ownership. There is also no indication that large institutional investors monitor CEO equity compensation.

Besides the level of compensations, the impact of concentrated institutional ownerships could also be reflected in pay-for-performance sensitivities. Whether CEO compensation received in M&A is tied to their short-term performance or not under different ownership structures is presented in Table 18 Panel B. The sign and the significance of the coefficients of *CAR2* and interacted terms between *CAR2* and institutional ownerships remain the same as in Table 11. In widely held firms, CEO cash compensation is not affected by their performance in M&A. In institution controlled firms, the relation is greatly improved. However, higher equity compensation does not come from good short-term performance in any groups of firms.

The lack of significant association between the firm short-term performance and equity compensations does not necessarily mean that large institutional investors do not care about equity compensation or firms' long-term development. However, Panel C suggests that equity compensations are not affected by post-merger long-term performance either.

In the tests of CEO compensation and managerial power in Panel D, large institutional shareholders reduce the increases in CEOs bonus and salary plus bonus which are amplified from CEO duality. However, over the design of equity packages, they do not show any effort to influence CEOs who also serve as chairmen in the boards.

In the logistic regressions presented in Panel E, the shift of CEO compensation structure is out of the control of large institutional ownership or the combination of the CEO power or their expectations of firm long-term performance.

Institutional large shareholders can effectively control CEO cash compensation regarding the magnitude of the changes and the alignment between the increases in compensations and their performance, but there is no evidence to suggest that they control CEO equity compensation or

compensation structure.

5.3.2 Compounding Effects

Given that we are measuring returns over a 3-year period, perhaps a weakness of the *LTRETURN* calculation is that the returns are not compounded. This could lead to biased measurement (Barber & Lyon, 1997) when dividend payments change over time. As a robustness test, we use a monthly compounded holding period abnormal return (HPR) to measure the long term performance of a merger. Equation 5.7 is used for the computation of HPR:

$$\text{HPR} = \prod(1 + R_{i,t}) - \prod(1 + R_{m,t}) \qquad 5.7$$

Where $R_{i,t}$ is the monthly stock total return for individual firms i, and $R_{m,t}$ is the monthly stock total return for the value-weighted market index[15]. Again, we incorporate two time periods, the three-year immediately after the completion and the three-year starting one year after the completion. We denote the first by HPR and the second by HPR_1.

The analysis using compounded holding period return generates results similar to those produced with simple returns. For brevity, we only present the coefficients of long-term performance in Tables 17.

[Insert Table 17]

As shown in Tables 17, the new measures, HPR and HPR_1 are lower than *LTRETURN* and *LTRETURN_1* respectively, but similar to *LTRETURN* and *LTRETURN_1,* HPR is smaller than HPR_1. Panel B suggests that HPR and HPR_1 do not change any relations between CEO compensation and the institutional ownership, the performance, or the managerial power. In the separate tests of long-term performance in widely held firms and institution controlled firms in Panel C and E, large institutional shareholders fail to show any control in pay-for-long-term performance.

Note that HPR and HPR_1 are both cumulative abnormal returns over the relevant 3-year period. As robustness test, we use the geometric average return per month (GAR) over the relevant 3-year period. GAR is calculated as follows:

[15] We also tested daily stock return and the results do not differ from each other.

$$GAR = \sqrt[t]{\prod(1 + R_{i,t})} - \sqrt[t]{\prod(1 + R_{m,t})} \quad 5.8$$

Where $R_{i,t}$ is the monthly stock total return for individual firms i, and $R_{m,t}$ is the monthly total return for the value-weighted market index. The qualitative results remain unchanged.

5.3.3 The Relative Size of Transaction

Firm size could be expanded by acquiring other firms. The relative size of the M&A transactions reflects the rate of expansion. To account for the impact of enlarged firm size after M&A, we also incorporate the value of acquired target to the value of bidder in Table 18.

[Insert Table 18]

Consistent with the literature, the new accumulated size boosts CEO bonus and salary plus bonus payments (Panel A to D). However, the value of the transaction does not alter our observation on the relationship between CEO compensation and institutional ownership. Institutional large shareholders reduce CEO cash compensation after M&A but enhance the relation with short-term performance at the same time. The F-test of institutional dummy variables and the interacted terms in Panel D suggests that rent extraction by powerful CEO is also mitigated in institution controlled firms. CEO equity compensation, however, is not controlled by institutional large shareholders.

5.3.4 Alternative Institution Concentration

Compared with 6%, 5% is more accepted by most of the scholars when considering significant shareholding. While the argument for using 5% would be that SEC filing requires disclosure 5% or more holding by a single investor, we use 6% holding to indentify intense institutional ownership to avoid issues associated with small sample size. We re-estimate our regressions with the 5% definition and present the results in Table 19.

[Insert Table 19]

The firms in the braket of 5% to 10% institutional ownershil compensate their CEOs with $528.16 less in bonus and $550.577 less in salary plus bonus compared to firms with less than 5% institutional ownership. The reduction in cash is larger than that in the 6% to 10% institutional ownership but still lower than in firms with over 10% institutional ownership. The cash payments increase with good short-term and long-term performance but decrease when CEO have too much controlling in institution controlled firms. No significant impact of

institutional ownership is shown on CEO equity compensation.

5.3.5 The Change in Compensation

The focus in the above analysis is the level and the structure of CEO compensation. A higher level of compensation does not necessarily imply larger maganitude of change in compensation. Thus, in this section, we test the changes in compensation from one year prior to the compeletion, and the results are reported in Table 20.

[Insert Table 20]

The adjusted R-square sharply drops when we test the changes in CEO total and equity compensation in Panel A to D. The p values of the F-test of the regressions of the changes in CEO option and stock plus option grants are higher than 10% in Panle A, B, and D. Althought the regressions of the changes in total and equity compensation in Panel B is significant and the relationship between equity compensation and short-term performance is significantly changed in institution controlled firms, the adjusted R-squre is very low, suggesting that the fitness of the regressions is very poor. The effect of instituonal large shareholders' monitoring on CEO cash compensation remains the same. While the level of cash is lower, the association between cash and performance is higher, and cash compensation that arises from CEO duality is lower in institution controlled firms.

6 SUMMARY AND CONCLUSIONS

This Chapter summarizes the motivations and the findings, considers the implications of the results for practitioners, academics, and policy makers, identifies the limitations, and recommends directions for future research.

6.1 Motivations and Findings

Previous studies, such as Girma et al. (2006), suggest that CEO compensation increases through M&A. However, only three papers directly investigate the reasons behind this increase. The US bidder CEOs use their influence over the board to extract rent in M&A, which supports the managerial power theory, while Australian CEOs are compensated for their effort to complete deals and their better performance during M&A announcements, which is consistent with the traditional theory of CEO compensation. Moreover, the UK CEOs compensation are less paid for their power in M&A than the compensation in US firms.

This study explores the nature and reasons behind compensation increases following mergers and acquisitions. We contribute to the literature in several directions. First, we investigate whether the increases in CEO compensation resulting from mergers and acquisitions are larger than what might be justified on the basis of bigger size and different firm specific circumstances and whether these changes are persistent over time. Second, we examine whether the post-merger 3-year performance can explain some of the changes in CEO compensation. Third, we consider the impact of institutional investors on the size and structure of executive compensation following M&A. These issues have not been addressed by previous studies. Our sample consists of 268 M&A events that took place in non-family firms during the period of 2001 to 2005 inclusive. We compare the level of compensation in those 268 bidder firms with the non-M&A firms available in the Compustat during the sample period by controlling for firm characteristics and industries.

Our analysis shows that the period of time is a matter of the changes in CEO compensation in the year of completing M&A. During our sample period, the transactions does not improve CEO total compensation, because only cash compensation grows after the completion of the deals. However, between 1993 and 2000, when there was a big M&A wave, bull stock market, and proliferation of option grants, both CEO cash and equity compensation increased following M&As. After 2000, the settled stock market and new accounting regulations made options less favorable to managers and firms. The market at the same time also stopped overpaying options. Therefore, the trend of the changes in CEO compensation differs between the two periods.

Though there is no significant difference of CEO total compensation before and after the M&A, 266 bidder firms are shown when firms do not have large institutional shareholders, they compensate their CEOs much higher in M&A years than through internal growth conducted by the non-M&A firms in the same period. If firms have at least one large institutional shareholder, the increase in CEO cash compensation will be much lower.

Large institutional shareholders also monitor CEO cash compensation by reducing the level of cash payments, enhancing the association with short term performance, and prohibiting cash extractions via managerial power. In institution controlled firms, the traditional theory explains CEO cash compensation in M&A, while in widely held firms, the managerial power theory is dominant, as managers are not rewarded or punished for their good or bad performance.

However, we do not find any positive evidence that large institutional shareholders manage

CEO equity compensation in M&A. As our results indicate that firm long-term performance is not predictable from short-term performance in M&A, we infer that large institutional shareholders may not be able to forecast the impact of M&A in the long-term and thus adjust CEO equity compensation in the completion years, and the grants of equity compensation could be negotiated for multiple years.

Though corporations which pay CEO more cash during M&A underperform those which substitute CEO partial cash payments with equity payments in both short-term and long-term, institutional ownership or mangers with substantial power do not seem to explain the changes in CEO compensation structure. Institutional shareholders' lack of control of CEO compensation structure could be caused by the lack of ability to manage CEO equity compensation in M&A.

Therefore, we show that in general the change in CEO compensation in M&A depends on the stock market, related regulations, and the shareholders' understanding of compensation. CEO would get more payments from M&A than from internal growth, but large institutional shareholders would reduce the increases significantly. Large institutional shareholders are effective in preventing CEOs from expropriating more cash in M&A but they do not influence CEO equity compensation or compensation structure.

6.2 Implications

Our study contributes to both the theoretical research and the practical implements of CEO compensation. We complement the literature of the reasons behind the increases in CEO compensation through M&A by adding long-term post acquisition performance. Therefore, we are able to fully and deeply understand the properties of CEO compensation. Moreover, we also take in account the governance of institutional ownership to test the effectiveness of compensation as a monitoring devise. Another innovation is the investigation of the changes in CEO compensations structure in M&A and the comparison of the performance in different groups, which allows us to know the design of different forms of compensation and the whole compensation package.

Empirically, our study could be a base for firms to re-exam the design and the control of their managers' compensation contract. More effective monitoring mechanisms should be conducted to control the expropriations and unreasonable negotiations. The market policy makers should also pay attention to our findings before making any new regulations regarding compensation and related accounting standards to prevent mangers expropriating from investors. Shareholders

could also use our conclusions to make investment decisions to avoid managerial rent extraction.

6.3 Limitations and Recommendations for Future Studies

Despite the above implications, this thesis does not test multiple takeovers within our sample period nor does it compare the difference between single takeovers. We admit that the strategies and agency problems could vary in different types of M&As. Since we do not have the technique of distinguishing the impact of each event from a serial M&As on firms' long-term performance, we leave this topic for future studies. Another aspect of the future investigation of the two compensation theories could be to look at the corporate governance among different institutional investors such as mutual funds, pension funds, hedge funds, and insurance companies. Because of the data unavailability, we are not able to split the institutional ownership into more detailed types. Future research could focus on the monitoring role of different institutional shareholders and the impact of such monitoring on CEO compensation in M&A.

Appendix A: Summary of the variables and the construction

Panel A. CEO compensation	
SALARY	CEO annual base salary
BONUS	CEO annual bonus
OTHANN	CEO annual other payments
STOCK	CEO annual restricted stock granted
OPTION	CEO annual option granted under Black and Scholes' model
LTIP	CEO annual payments under company's long-term incentive plan
ALLOTHTOT	CEO all other compensation which cannot be attributed to any other types
TOTAL	The sum of the above seven CEO compensation components
CASH_BASED_PAYMENT	The sum of the salary, bonus, other payments
EQYUITY_BASED_PAYMENT	The sum of stock, option, and long-term incentive payments

Pane B Firm's characteristics	
SIZE	The logarithm of the firm's total book value of asset at the beginning of the year
ROA	Return on asset
RETURN	Fiscal annually stock return
SALES_GROWTH	The growth rate of sales
LEVERAGE	The ratio of the total liability to total asset

Panel C Firm performance	
CAR2	Announcement period abnormal return within announcement day and one day prior
LTRETURN_ADJUSTED	Long-term market adjusted return within 3 years starting from the completion date
LTRETURN_ADJUSTED_1	Long-term market adjusted return within 3 years starting from one year after the completion date
CTAR	3-year Calendar-time portfolio abnormal return under Fama-French model
CTAR_1	3-year Calendar-time portfolio abnormal return under Fama-French model
HPR	3-year market adjusted monthly holding-period-return staring from the first month after the completion
HPR_1	3-year market adjusted monthly holding-period-return staring from the thirteenth month after the completion

Panel D Management efforts	
TRANSACTION_VALUE	The value of the M&A deals
TIME	The logarithm of the number of days between announcement and completion
DUM_DIVERSIFY	Dummy variable which equals to 1 when the target and the bidder are not in the same industry
DUM_SHAREONLY	Dummy variable which indicates whether bidders pay targets with only shares

Panel D Managerial power	
DUM_CHAIRMAN	Dummy variable which indicates whether CEO also serve as a chairman
TENURE	The logarithm of the number of years of being CEO till the completion of M&A deals

Panel F Ownership structure	
DUM06_INSTI	Dummy variable whether the biggest institutional shareholder owns between 6% to 10% of firms' total shares
DUM10_INSTI	Dummy variable whether the biggest institutional shareholder owns over 10% of firms' total shares

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Table 1 Summary statistics and univariate tests of CEO compensation

This table lists CEO compensation in 268 events from non-family bidding firms between 2001 and 2005 inclusive. Panel A is the summary statistics of CEO compensation and components in completion years. Panel B compares CEO compensation and component in the completion year with one year prior. SALARY is CEO annual base salary. BONUS is CEO annual bonus. OTHANN is CEO annual other payment. STOCK is CEO annual restricted stock granted. OPTION is CEO option granted under Black and Scholes' model. LTIP represents CEO payment under the company's long-term incentive plan. ALLOTHTOT is CEO all other compensation which cannot be attributed to any other types. TOTAL is the sum of the above seven CEO compensation components. CASH_BASED_PAYMENT equals to the sum of the salary, bonus, and other payments, which are linked to firm performance in a short-term. EQYUITY_BASED_PAYMENT is the sum of stock, option, and long-term incentive payments, which are paid according to firm performance in a long-run. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A: CEOs compensation in completion year (unit: thousands).

	N	Min	Max	Mean	Std. Dev	Median
SALARY	268	0.000	2042.700	657.739	308.400	624.050
BONUS	268	-0.001	6089.730	693.533	902.102	400.000
OTHANN	268	0.000	2143.570	50.801	187.093	0.000
STOCK	268	0.000	17900.000	435.310	1546.350	0.000
OPTION	268	0.000	27277.470	2250.770	4022.440	723.780
LTIP	268	0.000	4725.000	137.289	619.060	0.000
ALLOTHTOT	268	0.000	5675.270	170.174	641.551	16.008
TOTAL	268	110.500	32164.630	4395.610	5328.580	2622.440
CASH_BASED_PAYMENT	268	0.000	10565.220	1572.250	1464.800	1134.650
EQYUITY_BASED_PAYMENT	268	0.000	27277.470	2823.360	4572.610	1101.960

Panel B: Univirate test of CEO compensations: The completion year (t=0) versus the year prior (t=-1) for the whole sample. N=268

	Mean (t=0)	Mean(t=-1)	diff-Mean	t	Sig.	diff-median
SALARY	657.739	609.596	**48.142*** **	8.750	<.0001	45.300
BONUS	693.533	573.378	**120.155*** **	2.910	0.004	0.000
OTHANN	50.801	42.557	8.244	1.440	0.151	0.000
STOCK	435.310	429.871	5.439	0.040	0.966	0.000
OPTION	2250.770	3246.830	**-996.064*** **	-2.660	0.008	-326.141
LTIP	137.289	79.614	**57.674***	1.860	0.063	0.000
ALLOTHTOT	170.174	65.691	**104.483*** **	3.020	0.003	-1.062
TOTAL	4395.610	5047.540	-651.927	-1.510	0.132	123.840
CASH_BASED_PAYMENT	1572.250	1291.220	**281.024*** **	4.930	<.0001	90.300
EQYUITY_BASED_PAYMENT	2823.360	3756.320	**-932.951** **	-2.220	0.028	-62.540

Table 2 Univariate tests under different methodologies and different periods

This table is univariate tests of CEO compensation and components under the sample selection criteria and sample period of Harford and Li (2007) and ours. The differences between Harford and Li's and our filters are: 1.We test the mean of CEO compensation in and before M&A, while Harford and Li look at CEO compensation after and before M&A. 2. We require the market value of the transaction must be at least 5% of the bidders' total market capital, whereas Harford and Li increase use 10%. 3. Our overlap cannot happen with 4 years while Harford and Li exclude the overlapped deals within 2 years. Panel A presents the replication of the study of Harford and Li (2007), which is from 1993 to 2000. Panel B is constructed under the same criteria as our sample, but with Harford and Li's sample period, which is from 1993 to 2000. Panel C presents another new group of CEO compensation which is selected under Harford and Li's methodology but under our sample period, from 2001 to 2003. t0 is the year of completing the M&A transactions and t-1 is one year prior. SALARY, BONUS, OTHANN, STOCK, OPTION, LTIP, and ALLOTHTOT are seven components of CEO annual total compensation (TOTAL), which are base salary, bonus, annual other payments, restricted stock granted, option granted, long-term incentive payment, and all other compensation. CASH_BASED_PAYMENT equals to the sum of the salary, bonus, and other payments. EQYUITY_BASED_PAYMENT is the sum of stock, option, and long-term incentive payments. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Table 2 Univariate tests under different methodologies and different periods

Panel A Univariate test of CEO compensation in one year after the completion (t=1) and in one year before the announcement (t=-1) from the replication of Harford and Li (2007) (from year 1993 to 2000). N=283

	Mean(t=1)	Mean(t=-1)	diff-Mean	t	Sig.	diff-median
SALARY	637.76	539.988	97.773***	15.11	0	83.666
BONUS	758.21	612.916	145.293**	2.156	0.032	77.96
OTHANN	151.594	29.468	122.126	1.048	0.296	0
STOCK	239.473	206.199	33.273	0.28	0.78	0
OPTION	3099.609	1274.641	1839.833***	3.011	0.003	181.9855
LTIP	227.986	126.905	101.082	1.096	0.274	0
ALLOTHTOT	147.687	66.701	80.985**	2.011	0.045	0
TOTAL	5262.319	2860.497	2426.103***	3.624	0	573.9615
CASH_BASED_PAYMENT	1695.251	1249.073	446.178**	2.243	0.026	180.045
EQYUITY_BASED_PAYMENT	3567.068	1607.443	1977.684***	3.214	0.001	305.684

Panel B Univariate test of CEO compensations in one year after the completion (t=1) and in one year before the announcement (t=-1) from 1993 to 2000 under our methodology. N=315

	Mean(t=0)	Mean(t=-1)	diff-Mean	t	Sig.	diff-median
SALARY	575.69	531.737	43.954***	8.731	0	30.6
BONUS	550.968	504.898	46.07	1.412	0.159	50
OTHANN	41.796	36.772	5.025	0.543	0.588	0
STOCK	240.483	166.626	73.857	1.047	0.296	0
OPTION	3182.93	1970.841	1212.089***	3.336	0.001	126.398
LTIP	194.887	174.827	20.06	0.329	0.742	0
ALLOTHTOT	136.5	146.394	-9.893	-0.229	0.819	0
TOTAL	4923.254	3532.093	1391.161***	3.792	0	219.941
CASH_BASED_PAYMENT	1304.955	1219.8	85.155	1.623	0.106	98.384
EQYUITY_BASED_PAYMENT	3618.3	2312.294	1306.006***	3.595	0	154.846

Panel C Univariate test of CEO compensations in completion year (t=0) and in one year before (t=-1) from 2001 to 2005 under Harford and Li's methodology. N=217

	Mean(t=1)	Mean(t=-1)	diff-Mean	t	Sig.	diff-median
SALARY	757.462	629.068	128.394***	7.156	0	76.923
BONUS	672.553	749.679	-77.127	-0.784	0.434	0
OTHANN	60.666	44.117	22.938***	2.61	0.01	0
STOCK	944.39	366.087	721.106**	2.552	0.012	0
OPTION	2457.26	3024.9	-610.971	-0.747	0.456	-32.708
LTIP	355.92	175.907	175.035**	2.14	0.034	0
ALLOTHTOT	186.67	78.027	109.835*	1.958	0.052	0
TOTAL	5617.612	5067.734	556.683	0.88	0.38	287.143
CASH_BASED_PAYMENT	1744.838	1500.892	307.855***	2.362	0.019	160.374
EQYUITY_BASED_PAYMENT	3757.57	3569.403	289.911	0.427	0.67	0

Table 3 Statistics Summary Tables of Explanatory Variables

This table describes the statistics of major explanatory variables of 268 events from non-family bidding firms from 2001 to 2005. Those explanatory variables are categorized into five groups, which are illustrated in the following 5 panels. Panel A is the firm level characteristics for non-family bidding firms. SIZE refers to the book value of the total assets in bidding firms in the beginning of the completion years. ROA is computed by the annual earnings before interest, taxes, depreciation, and amortization (EBITDA) over total assets. RETURN is the total gross stock return during the completion years. SALE_GROWTH is the growth rate of sales, which is equal to the sales in completion years divided by the sales one year prior. LEVERAGE is the total liability to total asset. Panel B addresses the firm performance in M&A. CAR2 is the announcement period cumulative abnormal return within announcement day and one day prior under the market model. LTRETURN and LTRETURN_1 are both 3-year post-acquisition performance. They are the market adjusted monthly average stock total return. The former one starts from the first month after the completion, while the latter one starts from the 13^{th} month after the completion. CTAR and CTAR_1 are the calendar-time portfolio abnormal returns under Fama-French model, from the 1^{st} month to the 36^{th} month and from the 13^{th} month to the 48^{th} month respectively. Panel C is about deal level characteristics. TRANSACTION_VALUE is the market value of the transaction. TIME is the number of days between the announcement date and the effective date. DUM_DIVERSIFY identifies whether the target's SIC is the same as the bidder's SIC. DUM_SHAREONLY is equal to 1 when the bidder pays the target with only shares. Panel D is about managerial power. DUM_CHAIRMAN indicates CEO duality. TENURE is the number of years when CEO works in the firm. Panel E presents institutional ownerships. DUM06_INSTI is equal to 1 when the firm's largest institutional investor, if have any, has 6% to10% of the firm's total shares. DUM10_INSTI is equal to 1 when the firm's largest institutional investor, if have any, has more than 10% of the firm's total shares. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Table 3 Statistics Summary Tables of Explanatory Variables

Panel A Statistical summary table of the bidder firms characteristics

	N	Min	Max	Mean	Std. Dev
SIZE	268	7.611	93208.000	3244.400	8989.490
ROA	266	-0.431	0.470	0.112	0.105
RETURN	268	-0.885	1.754	0.037	0.450
SALE_GROWTH	268	0.005	2.846	1.179	0.340
LEVERAGE	267	0.052	1.119	0.480	0.191

Panel B Statistical summary table of firm performance

	N	Min	Max	Mean	Std. Dev
CAR2	259	-0.225	0.405	-0.004	0.062
LTRETURN	263	-1.003	6.044	0.099*	0.824
LTRETURN _1	257	-1.254	4.220	0.168***	0.842
CTAR	264	-0.275	0.097	0.000	0.027
CTAR_1	254	-0.100	0.215	0.003*	0.026

Panel C Statistical summary table of deal characteristics

	N	Min	Max	Mean	Std. Dev
TRANSACTION_VALUE	268	3.500	59515.020	1198.850	4965.550
TIME	268	0	486.000	74.067	79.355
DUM_DIVERSIFYIFY	268	0	1	0.556	0.498
DUM_SHAREONLY	268	0	1	0.090	0.286

Panel D Statistical summary table of managerial power

	N	Min	Max	Mean	Std. Dev
DUM_CHAIRMAN	268	0	1	0.653	0.477
TENURE	266	0	41	7.624	6.605

Panel E Statistical summary table of ownership structure

	N	Min	Max	Mean	Std. Dev
DUM06_INSTI	268	0	1	0.381	0.486
DUM10_INSTI	268	0	1	0.455	0.499

Table 4 Comparison of explanatory variables among cash, neutral, and equity groups

This table presents the explanatory variables among CASH, NEUTRAL, and EQUITY groups. We base on the changes in the percentages of CEO cash and equity compensations before and after M&A to divide our sample. In the CASH group, the ratio of CEO cash-based-compensation to total compensation increases by at least 5% between one year prior and the completion year. In the NEUTRAL group, the change in the percentage of CEO cash-based-compensation or equity-based-compensation from one year before M&A to completion year is less than 5%. In the EQUITY group, the percent of CEO equity-based-compensation out of total compensation in the completion year is at least 5% higher than one year prior. In Panel A, SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. In Panel B, CAR2 is the announcement period cumulative abnormal return within announcement day and one day prior under the market model. LTRETURN and LTRETURN_1 are both 3-year market-adjusted monthly average stock returns starts from the first month after the completion and starts from the 13^{th} month after the completion respectively. CTAR and CTAR_1 are the calendar-time portfolio abnormal return under Fama-French model, from the 1^{st} month to the 36^{th} month and from the 13^{th} month to the 48^{th} month respectively. In panel C, TRANSACTION_VALUE is the market value of the transaction. TIME is the number of days between the announcement date and the effective date. DUM_DIVERSIFY identifies whether the target and bidder are in the same industry. DUM_SHAREONLY is equal to 1 when the bidder pays the target with only shares. In Panel D, DUM_CHAIRMAN indicates CEO duality. TENURE is the number of years when CEO works in the firms. In Panel E, DUM06_INSTI is equal to 1 when the firm's largest institutional investor, if have any, has 6% to10% of the firm's total shares. DUM10_INSTI is equal to 1 when the firm's largest institutional investor, if have any, has more than 10% of the firm's total shares. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Table 4 Comparison of explanatory variables among cash, neutral, and equity groups

Panel A The comparison of firms' characteristics among cash, neutral, and equity group			
	CASH	NEUTRAL	EQUITY
SIZE	3182.96	3428.19	3154.01
ROA	0.094	0.129	0.115
RETURN	0.029	0.027	0.055
SALES_GROWTH	1.133	1.23	1.184
LEVERAGE	0.456	0.48	0.505
N	98	78	92

Panel B The comparison of firms' performance among cash, neutral, and equity group			
	CASH	NEUTRAL	EQUITY
CAR2	0.001	**-0.016****	0.001
LTRETURN	0.104	0.038	**0.144****
LTRETURN _1	0.084	0.128	**0.293*****
CTAR	-0.001	-0.002	**0.003***
CTAR_1	-0.001	0.001	**0.009*****

Panel C The comparison of deals characteristics among cash, neutral, and equity group			
	CASH	NEUTRAL	EQUITY
TRANSACTION_VALUE	1533.440	1336.600	725.654
TIME	69.418	78.705	75.087
DUM_DIVERSIFYIFY=1	0.561	0.551	0.554
DUM_SHAREONLY	0.071	0.115	0.087

Panel D. The comparison of managerial power among cash, neutral, and equity group			
	CASH	NEUTRAL	EQUITY
DUM_CHAIRMAN	0.663	0.692	0.609
TENURE	5.990	9.792	7.533

Panel E. The comparison of ownership structure among cash, neutral, and equity group			
	CASH	NEUTRAL	EQUITY
DUM06_INSTI	0.388	0.372	0.380
DUM10_INSTI	0.449	0.462	0.457

Table 5 Comparison of CEO compensation among different ownerships

This table compares CEO compensation and components in dispersed ownership, 6%-10% institutional ownership, and 10% plus institutional ownership. If the firm does not have any institutional shareholders or the largest institutional shareholder owns no more than 6% of the firm's total shares, then it is in the NON-INSTI group. In the DUM06_INSTI and DUM10_INSTI group, the firm's largest institutional shareholder owns 6% to 10% and more 10% plus of the firm's total outstanding shares. SALARY, BONUS, OTHANN, STOCK, OPTION, LTIP, and ALLOTHTOT are seven components of CEO annual total compensation (TOTAL), which are base salary, bonus, annual other payments, restricted stock granted, option granted, long-term incentive payment, and all other compensation. CASH_BASED_PAYMENT equals to the sum of the salary, bonus, and other payments. EQYUITY_BASED_PAYMENT is the sum of stock, option, and long-term incentive payments. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A Comparison of the level of CEO compensation in completion year among widely held, 6% to 10% institution controlled, and 10% plus institution controlled group

	Non_insti	DUM06_INSTI	DUM10_INSTI
SALARY	703.511	648.461	648.987
BONUS	1094.81	672.965	566.008
OTHANN	80	49.048	41.736
STOCK	293.327	571.645	372.532
OPTION	2543.36	2162.11	2219.36
LTIP	287.182	164.608	60.388
ALLOTHTOT	242.092	194.287	124.076
TOTAL	5244.28	4463.12	4033.09
CASH_BASED_PAYMENT	2120.41	1564.76	1380.81
EQYUITY_BASED_PAYMENT	3123.87	2898.36	2652.28
N	44	102	122

Panel B The difference in means of CEO compensation between the completion year and one year before in widely held group. N=44

	mean(t=1)	mean(t=0)	diff	t	sig
SALARY	703.511	664.94	**38.571*** **	3.37	0.002
BONUS	1094.81	660.574	**434.231*** **	2.99	0.005
OTHANN	80	53.378	**26.622***	1.92	0.061
STOCK	293.327	482.418	-189.091	-0.55	0.585
OPTION	2543.36	5152.02	**-2608.660***	-1.71	0.094
LTIP	287.182	179.8	107.382	1.09	0.281
ALLOTHTOT	242.092	110.648	131.444	1.23	0.226
TOTAL	5244.28	7303.78	-2059.5	-1.11	0.274
CASH_BASED_PAYMENT	2120.41	1489.54	**630.869*** **	3.28	0.002
EQYUITY_BASED_PAYMENT	3123.87	5814.24	-2690.37	-1.46	0.153

Panel C The difference in means of CEO compensation between the completion year and one year before in the 6% to 10% institution controlled group. N=102

	mean(t=1)	mean(t=0)	diff	t	sig
SALARY	648.461	600.768	**47.693*** **	6.570	<.0001
BONUS	672.965	522.968	**149.997** **	2.300	0.023
OTHANN	49.048	42.100	6.948	1.050	0.299
STOCK	571.645	359.516	212.128	1.020	0.312
OPTION	2162.110	2818.870	-656.756	-1.400	0.164
LTIP	164.608	84.259	80.349	1.430	0.156
ALLOTHTOT	194.287	48.513	**145.774** **	2.240	0.028
TOTAL	4463.120	4476.990	-13.866	-0.020	0.981
CASH_BASED_PAYMENT	1564.760	1214.350	**350.412*** **	3.610	0.001
EQYUITY_BASED_PAYMENT	2898.360	3262.640	-364.278	-0.680	0.499

Panel D The difference in means of CEO compensation in the completion year and one year before in the 10% plus institution controlled group. N=122

	mean(t=1)	mean(t=0)	diff	t	sig
SALARY	648.987	597.018	**51.970*** **	5.390	<.0001
BONUS	566.008	584.076	-18.068	-0.390	0.698
OTHANN	41.736	39.037	2.698	0.270	0.790
STOCK	372.532	469.740	-97.208	-0.520	0.602
OPTION	2219.360	2917.520	-698.157	-1.500	0.137
LTIP	60.388	39.598	20.789	0.610	0.545
ALLOTHTOT	124.076	63.839	60.237	1.650	0.101
TOTAL	4033.090	4710.830	-677.738	-1.420	0.157
CASH_BASED_PAYMENT	1380.810	1283.970	96.837	1.580	0.116
EQYUITY_BASED_PAYMENT	2652.280	3426.860	**-774.575***	-1.700	0.093

Table 6 Comparison of the explanatory variables among different ownerships

This table compares the explanatory variables in dispersed ownership, 6%-10% institutional ownership, and 10% plus institutional ownership. The firm with dispersed ownership is in the NON-INSTI group. In the DUM06_INSTI and DUM10_INSTI group include the firms with 6%-10% and 10% plus institutional ownership. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN and LTRETURN_1 are 3-year market-adjusted monthly average stock returns in (1, 36) and (13, 48). CTAR and CTAR_1 are the calendar-time monthly portfolio abnormal return under Fama-French model in (1, 36) and (13, 48). TRANSACTION_VALUE is the market value of the transaction. TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. DUM_CHAIRMAN indicates CEO duality. TENURE is the number of years when CEO works in the firms. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A The comparison of firms' characteristics among non-institution, 6% to 10% institution, and 10% plus institution controlled groups.

	NON_INSTI	DUM06_INSTI	DUM10_INSTI
SIZE	7805.79	2771.82	1994.41
ROA	0.109	0.107	0.116
RETURN	0.046	0.083	-0.004
SALES_GROWTH	1.201	1.167	1.181
LEVERAGE	0.47	0.481	0.483
N	43	102	122

Panel B The comparison of firms' performance among non-institution, 6% to 10% institution, and 10% plus institution controlled groups.

	NON_INSTI	DUM06_INSTI	DUM10_INSTI
CAR2	-0.006	0	-0.006
LTRETURN	0.11	0.097	0.096
LTRETURN _1	0.263	0.095	**0.194*** **
CTAR	**0.006** **	-0.002	0.001
CTAR_1	0.001	0.002	0.005

Panel C The comparison of managerial efforts among non-institution, 6% to 10% institution, and 10% plus institution controlled groups.

	NON_INSTI	DUM06_INSTI	DUM10_INSTI
TRANSACTION_VALUE	3561.99	963.064	543.707
TIME	89.636	73.245	69.139
DUM_DIVERSIFYIFY=1	0.523	0.5	0.615
DUM_SHAREONLY	0.159	0.069	0.082

Panel D The comparison of managerial power among non-institution, 6% to 10% institution, and 10% plus institution controlled groups.

	NON_INSTI	DUM06_INSTI	DUM10_INSTI
DUM_CHAIRMAN	0.636	0.627	0.68
TENURE	8.047	7.525	7.557

Table 7 The Pearson correlation coefficients of explanatory variables in Model 5.1

The table presents the correlation coefficients of explanatory variables in Model 5.1. This table includes not only 268 events from non-family bidding firm from 2001 to 2005 but also firms which are available in the Compustat database without M&A between 2001 and 2005. Therefore, we have 3816 observations here. SIZE is the book value of total asset in the beginning of the completion years. ROA is return on assets. ROA_GROWTH is the growth rate of ROA. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. MTBV is the market to book ratio. LEVERAGE is the total liability to total asset. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

	SIZE	ROA	ROA_ GROWTH	RETURN	SALES_ GROWTH	MTBV	LEVERAGE
SIZE	1						
ROA	0.013	1					
	(-0.412)						
ROA_GROWTH	0.004	0.005	1				
	(-0.818)	(-0.747)					
RETURN	-0.007	**0.050*** **	0.002	1			
	(-0.667)	(-0.002)	(-0.883)				
SALES_GROWTH	0.011	-0.011	0.000	-0.016	1		
	(-0.491)	(-0.492)	(-0.997)	(-0.338)			
MTBV	0.004	**0.124*** **	0.000	**0.055*** **	-0.001	1	
	(-0.813)	(<.0001)	(-0.993)	(-0.001)	(-0.969)		
LEVERAGE	**0.044*****	**-0.366*****	0.010	**-0.040****	0.010	-0.019	1
	(0.006)	(<.0001)	(0.527)	(0.015)	(0.536)	(0.233)	

Table 8 The regression of CEO compensation and components in Model 5.1

This table includes 3816 observations, 268 of which are from bidding firms while the rest of which are from non-M&A firms in the Compustat from 2001 to 2005. The regressions test the growth in CEO compensation in M&A compared with internal growth. SIZE is the book value of total asset in the beginning of the completion years. ROA is return on assets. ROA_GROWTH is the growth rate of ROA. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. MTBV is the market to book ratio. LEVERAGE is the total liability to total asset. DUM_MA is the M&A dummy variable. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. DUM06_INSTI_MA and DUM10_INSTI_MA are the products of institutional ownership dummies, DUM06_INSTI and DUM10_INSTI, with M&A dummy, DUM_MA. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
INTERCEPT	1309.717	38.822	479.988	300.569	158.327
	(0.810)	(0.140)	(1.490)	(0.230)	(0.110)
SIZE	**0.110*** **	**0.013*** **	**0.019*** **	**0.045*** **	**0.077*** **
	(17.730)	(11.730)	(15.040)	(8.920)	(13.860)
ROA	**4399.190*** **	**818.682*** **	**1108.600*** **	**2165.712*** **	**2888.453*** **
	(6.250)	(6.720)	(7.910)	(3.770)	(4.560)
ROA_GROWTH	0.030	0.036	0.052	-0.050	-0.032
	(0.040)	(0.310)	(0.390)	(-0.090)	(-0.050)
SALES_GROWTH	**1016.950*** **	**195.038*** **	**147.888** **	**760.978*** **	**868.715*** **
	(2.950)	(3.260)	(2.150)	(2.710)	(2.800)
RETURN	**7.746*** **	**0.810* **	**1.130** **	2.165	**6.719*** **
	(3.130)	(1.880)	(2.280)	(1.070)	(3.010)
MTBV	3.795	0.783	0.925	2.696	3.929
	(0.840)	(1.000)	(1.020)	(0.730)	(0.960)
LEVERAGE	**365.078** **	**98.029*** **	**146.095*** **	70.474	160.876
	(2.120)	(3.280)	(4.250)	(0.500)	(1.040)
DUM_MA	**1228.138** **	**411.752*** **	**488.023*** **	**824.738* **	672.853
	(2.370)	(4.580)	(4.720)	(1.950)	(1.440)
DUM06_INSTI	-134.799	-35.130	-62.170	-54.507	1.734
	(-0.390)	(-0.590)	(-0.900)	(-0.190)	(0.010)
DUM10_INSTI	-166.199	-87.435	-104.608	45.735	62.939
	(-0.480)	(-1.470)	(-1.530)	(0.160)	(0.200)
DUM06_INSTI_MA	-306.528	**-451.770*** **	**-495.172*** **	39.314	300.798
	(-0.500)	(-4.260)	(-4.050)	(0.080)	(0.550)
DUM10_INSTI_MA	-712.771	**-337.314*** **	**-380.232*** **	-514.770	-235.873
	(-1.170)	(-3.180)	(-3.110)	(-1.030)	(-0.430)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.1646	0.4033	0.3933	0.0499	0.0856
N	3759	3781	3781	3759	3759

Table 9 The Pearson correlation coefficients of explanatory variables in Model 5.2 and Model 5.3

This table discloses the correlation coefficients between the explanatory variables of 268 events from non-family bidding firms between 2001 and 2005 inclusive. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1,0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. DUM_CHAIRMAN indicates CEO duality. TENURE is the number of years when CEO works in the firms. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Table 9 The Pearson correlation coefficients of explanatory variable in Model 5.2 and Model 5.3

	SIZE	ROA	RETURN	SALES_ GROWTH	LEVER -AGE	CAR2	LTRE -TURN	TIME	DUM_DI -VERSIFY	DUM_SHA -REONLY	DUM_CH -AIRMAN	TEN -URE
SIZE	1											
ROA	**0.161*** **	1										
	(0.009)											
RETURN	0.062	**0.303*** **	1									
	(0.313)	(<.0001)										
SALES_ GROWTH	**0.108***	**0.411*** **	**0.225*** **	1								
	(0.079)	(<.0001)	(0.000)									
LEVERAGE	**0.380*** **	**0.109***	0.054	0.012	1							
	(<.0001)	(0.076)	(0.382)	(0.839)								
CAR2	**-0.153** **	**0.124** **	0.079	0.058	0.052	1						
	(0.014)	(0.048)	(0.204)	(0.356)	(0.406)							
LTRETURN	**0.108***	0.045	**0.169*** **	0.087	**0.113***	-0.012	1					
	(0.082)	(0.472)	(0.006)	(0.160)	(0.067)	(0.851)						
TIME	0.014	0.003	-0.033	**0.212*** **	**0.132** **	0.027	**0.474*** **	1				
	(0.829)	(0.959)	(0.599)	(0.001)	(0.034)	(0.664)	(<.0001)					
DUM_ DIVERSIFY	**0.261*** **	-0.025	0.090	-0.079	**0.107***	-0.095	0.008	-0.015	1			
	(<.0001)	(0.689)	(0.140)	(0.196)	(0.080)	(0.127)	(0.892)	(0.808)				
DUM_ SHAREONLY	-0.081	**-0.226*** **	**-0.148** **	0.094	**-0.253*** **	**-0.256*** **	**-0.113***	-0.069	**0.172*** **	1		
	(0.184)	(0.000)	(0.016)	(0.126)	(<.0001)	(<.0001)	(0.068)	(0.268)	(0.005)			
DUM_ CHAIRMAN	**0.133** **	-0.061	-0.007	0.085	0.027	-0.005	-0.030	-0.073	**0.129** **	-0.047	1	
	(0.032)	(0.332)	(0.908)	(0.164)	(0.668)	(0.936)	(0.628)	(0.249)	(0.037)	(0.452)		
TENURE	**-0.168*** **	0.045	-0.076	-0.011	-0.016	0.025	**-0.120***	**-0.247*** **	0.001	0.014	**0.267*** **	**1**
	(0.006)	(0.466)	(0.219)	(0.862)	(0.794)	(0.697)	(0.053)	(<.0001)	(0.993)	(0.816)	(<.0001)	

Table 10 The regression of CEO compensation in the completion year in Model 5.2

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table shows the impact of institutional ownership on the level of CEO compensation in M&A as well as the driven factors of CEO compensation in M&A after controlling for firms' characteristics. The dependent variables in the five columns are CEO total compensation, bonus, salary plus bonus, option grants, and restricted stock grants plus stock option grants. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. TENURE is the number of years when CEO works in the firms. DUM_CHAIRMAN indicates CEO duality. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
INTERCEPT	**-12501.000*** **	**-1865.791*** **	**-2562.251*** **	**-5959.484** **	**-8214.501*** **
	(-3.780)	(-3.460)	(-4.090)	(-2.230)	(-2.790)
SIZE	**2126.594*** **	**353.365*** **	**506.203*** **	**1074.898*** **	**1405.062*** **
	(8.390)	(8.560)	(10.540)	(5.240)	(6.210)
ROA	2343.131	-29.660	216.632	1044.223	1900.930
	(0.680)	(-0.050)	(0.330)	(0.370)	(0.610)
RETURN	-212.682	92.744	93.957	-937.151	-500.060
	(-0.290)	(0.780)	(0.680)	(-1.580)	(-0.760)
SALES_GROWTH	64.088	119.848	14.672	909.501	299.303
	(0.060)	(0.730)	(0.080)	(1.110)	(0.330)
LEVERAGE	-944.422	-59.289	-6.694	-782.356	-1044.781
	(-0.580)	(-0.220)	(-0.020)	(-0.590)	(-0.720)
CAR2	-2599.609	205.655	338.256	-4097.711	-2840.012
	(-0.560)	(0.270)	(0.380)	(-1.090)	(-0.690)
LTRETURN	-70.872	26.771	4.203	-121.688	-98.015
	(-0.210)	(0.480)	(0.060)	(-0.440)	(-0.320)
TIME	331.940	**61.202***	**73.147***	133.597	202.380
	(1.490)	(1.680)	(1.730)	(0.740)	(1.020)
DUM_DIVERSIFY	-596.158	**177.211***	168.825	**-994.169** **	-710.759
	(-0.990)	(1.810)	(1.490)	(-2.050)	(-1.330)
DUM_SHAREONLY	**2108.959***	286.063	324.046	1230.807	**1720.598***
	(1.860)	(1.550)	(1.510)	(1.340)	(1.700)
TENURE	-312.119	-48.107	-19.495	-284.133	-404.997
	(-0.710)	(-0.670)	(-0.240)	(-0.800)	(-1.040)
DUM_CHAIRMAN	113.344	165.456	**254.476** **	233.165	-128.717
	(0.180)	(1.610)	(2.130)	(0.460)	(-0.230)
DUM06_INSTI	144.354	**-319.799** **	**-318.297** **	358.957	568.750
	(0.170)	(-2.370)	(-2.030)	0.540)	(0.770)
DUM10_INSTI	-429.404	**-431.770*** **	**-414.023*** **	-5.470	171.579
	(-0.530)	-3.270)	(-2.700)	(-0.010)	(0.240)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.3406	0.4208	0.5006	0.2016	0.2231
N	253	253	253	253	253

Table 11 The regression of CEO compensation in the completion year on short-term performance in Model 5.3-A

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table shows whether firm short-term performance is a determinant of CEO compensation in different ownership firms. The dependent variables in the five columns are CEO total compensation, bonus, salary plus bonus, option grants, and restricted stock grants plus stock option grants. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. TENURE is the number of years when CEO works in the firms. DUM_CHAIRMAN indicates CEO duality. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. CAR2_DUM06 and CAR2_DUM10 are the interactions of CAR2 with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
INTERCEPT	**-12433.000*** **	**-1843.806*** **	**-2536.564*** **	**-5910.373*** **	**-8185.645*** **
	(-3.760)	(-3.450)	(-4.080)	(-2.210)	(-2.770)
SIZE	**2098.769*** **	**346.376*** **	**497.959*** **	**1052.405*** **	**1392.065*** **
	(8.240)	(8.430)	(10.420)	(5.100)	(-2.770)
ROA	2493.671	30.313	38.466	968.861	333.729
	(0.720)	(0.050)	(0.200)	(1.180)	(0.370)
RETURN	-297.375	66.427	63.164	**-999.728***	-536.707
	(-0.400)	(0.560)	(0.460)	(-1.670)	(-0.810)
SALES_GROWTH	139.407	140.076	286.278	1140.037	1958.445
	(0.140)	(0.860)	(0.440)	(0.410)	(0.630)
LEVERAGE	-750.402	-8.169	53.485	-628.292	-955.529
	(-0.460)	(-0.030)	(0.170)	(-0.470)	(-0.650)
CAR2	-14874.000	**-3322.916** **	**-3801.784***	-13501.000	-8316.367
	(-1.430)	(-1.980)	(-1.950)	(-1.600)	(-0.890)
LTRETURN	-63.982	27.987	5.662	-115.516	-94.498
	(-0.190)	(0.500)	(0.090)	(-0.410)	(-0.310)
TIME	312.141	56.441	67.521	117.342	193.009
	(1.390)	(1.560)	(1.610)	(0.650)	(0.960)
DUM_DIVERSIFY	-584.904	**180.470***	172.648	**-985.576** **	-705.752
	(-0.970)	(1.860)	(1.530)	(-2.030)	(-1.310)
DUM_SHAREONLY	**2155.990***	301.716	342.320	1264.341	**1740.347***
	(1.900)	(1.650)	(1.610)	(1.380)	(1.720)
TENURE	-280.004	-42.863	-13.171	-254.872	-388.364
	(-0.640)	(-0.600)	(-0.160)	(-0.720)	(-0.990)
DUM_CHAIRMAN	83.562	159.499	**247.374** **	207.308	-143.510
	(0.130)	(1.570)	(2.090)	(0.410)	(-0.250)
DUM06_INSTI	221.024	**-297.945** **	**-292.648***	417.908	603.064
	(0.270)	(-2.220)	(-1.880)	(0.620)	(0.810)
DUM10_INSTI	-355.552	**-411.925*** **	**-390.679** **	52.722	205.329
	(-0.440)	(-3.140)	(-2.560)	(0.080)	(0.280)
CAR2_DUM06	14520.000	**5075.796** **	**5916.491** **	10069.000	5956.759
	(1.060)	(2.290)	(2.300)	(0.910)	(0.490)
CAR2_DUM10	15215.000	**3983.014** **	**4690.087** **	12112.000	7013.978
	(1.290)	(2.090)	(2.110)	(1.260)	(0.660)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.3399	0.4306	0.5093	0.2002	0.2178
N	253	253	253	253	253

Table 12 The regression of CEO compensation in the completion year on long-term performance in Model 5.3-B

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table shows whether firm long-term performance is a determinant of CEO compensation in different ownership firms. The dependent variables in the five columns are CEO total compensation, bonus, salary plus bonus, option grants, and restricted stock grants plus stock option grants. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. TENURE is the number of years when CEO works in the firms. DUM_CHAIRMAN indicates CEO duality. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. LTRETURN_DUM06 and LTRETURN_DUM10 are the interactions of LTRETURN with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
INTERCEPT	**-12197.000*** **	**-1835.873*** **	**-2527.735*** **	**-5716.464** **	**-7945.931*** **
	(-3.670)	(-3.390)	(-4.020)	(-2.120)	(-2.680)
SIZE	**2123.027*** **	**351.963*** **	**504.469*** **	**1074.570*** **	**1403.833*** **
	(8.360)	(8.520)	(10.510)	(5.220)	(6.190)
ROA	2860.698	59.800	324.127	1365.635	2287.902
	(0.810)	(0.100)	(0.490)	(0.480)	(0.730)
RETURN	-164.001	105.536	109.605	-917.435	-471.671
	(-0.220)	(0.880)	(0.790)	(-1.530)	(-0.720)
SALES_GROWTH	-2.237	121.124	17.012	837.710	226.404
	(0.000)	(0.730)	(0.090)	(1.020)	(0.250)
LEVERAGE	-1084.092	-54.759	0.566	-937.962	-1201.665
	(-0.660)	(-0.200)	(0.000)	(-0.700)	(-0.820)
CAR2	-2643.687	148.484	266.419	-4006.057	-2782.309
	(-0.570)	(0.200)	(0.300)	(-1.060)	(-0.670)
LTRETURN	-464.979	-219.525	-303.036	61.556	-66.700
	(-0.390)	(-1.130)	(-1.340)	(0.060)	(-0.060)
TIME	331.277	58.952	**70.308***	138.313	205.790
	(1.480)	(1.620)	(1.660)	(0.760)	(1.030)
DUM_DIVERSIFY	-602.565	**179.832***	172.211	**-1007.103** **	-722.370
	(-1.000)	(1.840)	(1.520)	(-2.070)	(-1.350)
DUM_SHAREONLY	**2180.511***	297.830	338.147	1276.683	**1775.193***
	(1.920)	(1.610)	(1.570)	(1.390)	(1.750)
TENURE	-350.416	-59.309	-33.245	-296.909	-425.247
	(-0.790)	(-0.830)	(-0.400)	(-0.830)	(-1.080)
DUM_CHAIRMAN	183.198	**175.033***	**265.826** **	282.542	-71.922
	(0.290)	(1.700)	(2.220)	(0.550)	(-0.130)
DUM06_INSTI	60.831	**-354.877*** **	**-361.756** **	356.672	544.067
	(0.070)	(-2.590)	(-2.270)	(0.520)	(0.720)
DUM10_INSTI	-462.045	**-463.61*** **	**-453.944*** **	37.192	195.107
	(-0.560)	(-3.450)	(-2.910)	(0.060)	(0.260)
LTRETURN_DUM06	726.534	291.817	361.180	51.873	239.076
	(0.570)	(1.410)	(1.500)	(0.050)	(0.210)
LTRETURN_DUM10	46.697	232.296	293.334	-509.596	-375.311
	(0.040)	(1.110)	(1.200)	(-0.490)	(-0.330)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.3378	0.4208	0.5012	0.198	0.2194
N	253	253	253	253	253

Table 13 The regression of firm long-term post-acquisition performance on cumulated abnormal returns in Model 5.4

This table includes all 268 events from non-family bidding firms from 2001 to 2005. It reveals whether the market reaction to the announcement of M&A is a good and unbiased predictor of the firm long term performance after M&A. LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). CAR2 is the announcement period cumulative abnormal return in (-1, 0). ME is the market value of the firm's equity, which is the production of the market value of shares and the number of outstanding shares. BE/ME is the ratio of the book value of equity to the market value of the equity. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Variable	LTRETURN	LTRETURN	LTRETURN
INTERCEPT	**0.104*** **	0.29	0.489
	(-2.020)	(0.660)	(1.110)
CAR2	-0.158	-0.194	-0.612
	(-0.190)	(-0.230)	(-0.710)
ME			0
			(-0.720)
BE/ME			**-0.412*** **
			(-2.630)
YEAR & INDUSTRY	NO	YES	YES
R^2-ADJUSTED	-0.004	0.004	0.024
PROB.F VALUE	0.851	0.383	0.145
N	253	253	253

Table 14 The regression of CEO compensation in the completion year on managerial power in Model 5.5

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table shows whether managerial powder is a determinant of CEO compensation in different ownership. The dependent variables in the five columns are CEO total compensation, bonus, salary plus bonus, option grants, and restricted stock grants plus stock option grants. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. TENURE is the number of years when CEO works in the firms. DUM_CHAIRMAN indicates CEO duality. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. DUM_CHAIRMAN_DUM06 and DUM_CHAIRMAN_DUM10 are the interactions of DUM_CHAIRMAN with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate significance at the 1%, 5%, and 10% levels.

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
INTERCEPT	**-12001.000*** **	**-1971.579*** **	**-2673.153*** **	**-5198.305***	**-7717.947****
	(-3.510)	(-3.540)	(-4.130)	(-1.880)	(-2.530)
SIZE	**2143.490*** **	**352.083*** **	**505.192*** **	**1085.723*** **	**1421.937*** **
	(8.410)	(8.470)	(10.460)	(5.270)	(6.250)
ROA	2164.353	-8.250	236.698	878.718	1722.731
	(0.620)	(-0.010)	(0.360)	(0.310)	(0.550)
RETURN	-185.244	85.940	86.678	-888.892	-472.868
	(-0.250)	(0.710)	(0.620)	(-1.490)	(-0.720)
SALES_GROWTH	65.436	130.715	27.682	839.102	301.141
	(0.060)	(0.790)	(0.140)	(1.020)	(0.330)
LEVERAGE	-1032.019	-36.063	18.336	-946.187	-1131.523
	(-0.630)	(-0.130)	(0.060)	(-0.710)	(-0.770)
CAR2	-2649.754	210.819	342.881	-4138.671	-2890.032
	(-0.570)	(0.280)	(0.390)	(-1.100)	(-0.700)
LTRETURN	-88.517	24.520	0.975	-109.672	-115.798
	(-0.260)	(0.430)	(0.010)	(-0.390)	(-0.380)
TIME	324.857	**61.021***	**72.713***	133.726	195.274
	(1.450)	(1.670)	(1.710)	(0.740)	(0.980)
DUM_DIVERSIFY	-625.634	**191.455***	184.920	**-1091.063****	-739.658
	(-1.030)	(1.930)	(1.600)	(-2.210)	(-1.360)
DUM_SHAREONLY	**2005.914***	301.872	339.752	1112.873	1618.042
	(1.750)	(1.620)	(1.570)	(1.200)	(1.590)
TENURE	-317.406	-41.731	-12.048	-326.337	-410.009
	(-0.720)	(-0.580)	(-0.140)	(-0.910)	(-1.040)
DUM_CHAIRMAN	-768.982	324.457	417.159	-930.175	-1005.793
	(-0.530)	(1.370)	(1.510)	(-0.790)	(-0.770)
DUM06_INSTI	-317.420	-165.910	-148.812	-709.037	112.896
	(-0.230)	(-0.730)	(-0.560)	(-0.630)	(0.090)
DUM10_INSTI	-1319.541	-335.645	-326.618	-761.470	-716.146
	(-0.970)	(-1.520)	(-1.270)	(-0.690)	(-0.590)
DUM_CHAIRMAN_DUM06	713.630	-241.731	-266.590	1675.892	704.306
	(0.410)	(-0.850)	(-0.800)	(1.180)	(0.450)
DUM_CHAIRMAN_DUM10	1370.112	-152.026	-139.392	1190.082	1366.218
	(0.810)	(-0.550)	(-0.440)	(0.870)	(0.910)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.3369	0.4175	0.4977	0.1995	0.2194
N	253	253	253	253	253

Table 15 The regression of the changes in CEO compensation structure in Model 5.6

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table tests the determinants of the shifts of CEO compensation structure in M&A. Panel A uses multinomial logistic regressions while Panel B addresses the endogeneity by using two-stage regression, where the fitted long-term performance is from the first stage.The dependent variables are CASH and EQUITY which indicate the cash group and equity group respectively from our sample. SIZE is the book value of total assets in the beginning of the completion years. ROA is return on assets. RETURN is the completion year gross stock return. SALE_GROWTH is the growth rate of the sale. LEVERAGE is the total liability to total asset. CAR2 is the announcement period cumulative abnormal return in (-1, 0). LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). LTRETURN_F is the fitted value from the first stage. TIME is the number of days to complete. DUM_DIVERSIFY identifies diversification in M&A. DUM_SHAREONLY is the indicator of 100% share financing in M&A. TENURE is the number of years when CEO works in the firms. DUM_CHAIRMAN indicates CEO duality. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. LTRETURN_CHAIR and LTRETURN_F_CHAIR are the interactions of LTRETURN and LTRETURN_F with DUM_CHAIRMAN. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A Multinomial logistic regressions

VARIABLE	CASH	EQUITY
INTERCEPT	**5.148*** **	**4.441*** **
	(11.612)	(8.519)
SIZE	-0.229	**-0.478*** **
	(2.335)	(9.108)
ROA	**-4.653** **	-1.431
	(3.964)	(0.395)
RETURN	0.162	0.233
	(0.122)	(0.263)
SALES_GROWTH	-0.631	-0.262
	(0.919)	(0.166)
LEVERAGE	-0.509	**1.830***
	(0.229)	(3.110)
CAR2	**5.378***	4.755
	(2.832)	(2.312)
LTRETURN	0.312	0.319
	(0.507)	(0.530)
TIME	-0.023	0.006
	(0.028)	(0.002)
DUM_DIVERSIFY	0.065	-0.067
	(0.033)	(0.035)
DUM_SHAREONLY	-0.460	0.484
	(0.395)	(0.504)
TENURE	**-1.147*** **	**-0.794*** **
	(16.899)	(8.499)
DUM_CHAIRMAN	**0.652**	0.324
	(2.702)	(0.689)
DUM06_INSTI	-0.348	-0.346
	(0.459)	(0.452)
DUM10_INSTI	-0.283	-0.263
	(0.313)	(0.271)
LTRETURN_CHAIR	-0.266	-0.196
	(0.261)	(0.143)
YEAR	YES	YES
N	253	253

Panel B Two-stage regressions		
VARIABLE	CASH	EQUITY
INTERCEPT	**5.179*** **	**4.626*** **
	(11.353)	(9.009)
SIZE	-0.214	**-0.479*** **
	(2.035)	(9.078)
ROA	**-4.552***	-1.247
	(3.749)	(0.294)
RETURN	0.311	0.025
	(0.332)	(0.003)
SALES_GROWTH	-0.591	-0.338
	(0.766)	(0.262)
LEVERAGE	-0.317	1.424
	(0.076)	(1.642)
CAR2	4.417	5.107
	(1.927)	(2.601)
LTRETURN_F	-1.616	0.941
	(1.485)	(0.640)
TIME	-0.037	-0.007
	(0.072)	(0.003)
DUM_DIVERSIFY	0.084	-0.031
	(0.055)	(0.008)
DUM_SHAREONLY	-0.485	0.542
	(0.413)	(0.612)
TENURE	**-1.203*** **	**-0.713** **
	(16.065)	(6.292)
DUM_CHAIRMAN	0.429	0.342
	(1.024)	(0.629)
DUM06_INSTI	-0.315	-0.396
	(0.366)	(0.583)
DUM10_INSTI	-0.276	-0.283
	(0.295)	(0.311)
LTRETURN_F _CHAIR	2.000	0.011
	(2.336)	(0.000)
YEAR	YES	YES
N	253	253

Table 16 Robustness test of the regression of CEO compensation on LTRETURN_1 in Model 5.2, 5.3, 5.5, and 5.6

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table uses a new proxy for firm long-term performance. The dependent variables in Panel A-D in the five columns are CEO total compensation, bonus, salary plus bonus, stock options, and restricted stocks plus stock options. In panel E, the dependent variable is TYPE, which equals to CASH, EQUITY, or NUETRAL, and NUETRAL is used as the base group in both regressions of CASH and EQUITY. LTRETURN_1 is 3-year market-adjusted monthly average stock return in (13, 48). TIME is the number of days to complete. LTRETURN_1_DUM06 and LTRETURN_1_DUM10 are the interactions of LTRETURN_1 with DUM06_INSTI and DUM10_INSTI. LTRETURN_1_CHAIR is the interaction of LTRETURN_1 with DUM_CHAIRMAN.***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A. The regression of CEO compensation on LTRETURN_1 in Model 5.2

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN_1	105.984	-72.242	-89.222	166.060	161.430
	(0.310)	(-1.310)	(-1.390)	(0.600)	(0.530)

Panel B The regression of CEO compensation on LTRETURN_1 in Model 5.3-A

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN_1	121.375	-67.880	-84.110	177.991	168.332
	(0.360)	(-1.240)	(-1.320)	(0.640)	(0.550)

Panel C The regression of CEO compensation on LTRETURN_1 in Model 5.3-B

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN_1	366.020	-110.961	-133.302	488.302	590.125
	(0.560)	(-1.040)	(-1.070)	(0.910)	(1.010)
LTRETURN_1_DUM06	-1021.878	10.737	27.286	-804.275	-1166.676
	(-1.150)	(0.070)	(0.160)	(-1.110)	(-1.470)
LTRETURN_1_DUM10	125.280	82.207	82.847	-174.291	-162.897
	(0.150)	(0.600)	(0.520)	(-0.260)	(-0.220)

Panel D The regression of CEO compensation on LTRETURN_1 in Model 5.5

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN_1	110.387	-74.814	-92.120	183.645	165.360
	(0.320)	(-1.350)	(-1.430)	(0.660)	(0.540)

Panel E The multinomial logistic regression of CEO compensation on LTRETURN_1 in Model 5.6

Variable	CASH	EQUITY
LTRETURN_1	0.259	0.370
	(0.347)	(0.735)
LTRETURN_1_CHAIR	-0.553	-0.315
	(1.167)	(0.400)

Table 17 Robustness test of the regression of CEO compensation on HPR in Model 5.2 and 5.3

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. This table uses the 3-year market-adjusted monthly holding-period-return (HPR) and (HPR_1) in (1, 36) and (13, 48) to measure firm long-term post-acquisition performance. Panel A is the summary statistics of the robustness proxies. The dependent variables in Panel B-E in the five columns are CEO total compensation, bonus, salary plus bonus, stock options, and restricted stocks plus stock options. HPR_DUM06 and HPR_DUM10 are the interactions of HPR with DUM06_INSTI and DUM10_INSTI. HPR_1_DUM06 and HPR_DUM10 are the interactions of HPR_1 with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A The comparison among different robustness proxies

	N	Min	Max	Mean	Std. Dev
LTRETURN	263	-1.003	6.044	0.099*	0.824
LTRETURN _1	257	-1.254	4.22	0.168***	0.842
HPR	264	-1.051	4.218	0.071	0.763
HPR_1	258	-1.119	3.802	**0.159*** **	0.820

Panel B The regression of CEO compensation on HPR in Model 5.2

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
HPR	-48.826	27.262	0.819	-103.414	-90.173
	(-0.130)	(0.450)	(0.010)	(-0.340)	(-0.270)

Panel C The regression of CEO compensation on HPR in Model 5.3-B

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
HPR	-431.684	-177.984	-247.613	34.151	-108.609
	(-0.380)	(-0.970)	(-1.160)	(0.040)	(-0.110)
HPR_DUM06	700.920	251.536	305.084	42.430	258.443
	(0.570)	(1.250)	(1.310)	(0.040)	(0.230)
HPR_DUM10	107.197	197.803	238.721	-370.977	-248.680
	(0.090)	(0.980)	(1.020)	(-0.370)	(-0.220)

Panel D The regression of CEO compensation on HPR_1 in Model 5.2

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
HPR_1	50.454	-65.023	-78.717	113.321	89.662
	(0.140)	(-1.140)	(-1.190)	(0.400)	(0.280)

Panel E The regression of CEO compensation on HPR_1 in Model 5.3-B

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
HPR_1	168.251	-110.754	-131.020	291.204	383.477
	(0.220)	(-0.900)	(-0.920)	(0.470)	(0.570)
HPR_1_DUM06	-821.631	27.252	41.134	-623.371	-976.925
	(-0.870)	(0.180)	(0.230)	(-0.810)	(-1.150)
HPR_1_DUM10	366.605	81.300	85.344	80.362	92.324
	(0.400)	(0.540)	(0.490)	(0.110)	(0.110)

Table 18 Robustness test of the regression including relative size of the transaction in Model 5.2, 5.3, and 5.5

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. The relative size of the M&A transactions is incorporated. The dependendt variables are CEO total compensation, bonus, salary plus bonus, stock options, and restricted stocks plus stock options. PRCT_DEAL is the percentage of transaction value to the bidders'. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. CAR2 is the announcement period cumulative abnormal return in (-1, 0). DUM_CHAIRMAN indicates CEO duality. CAR2_DUM06 and CAR2_DUM10 are the interactions of CAR2 with DUM06_INSTI and DUM10_INSTI. LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). LTRETURN_DUM06 and LTRETURN_DUM10 are the interactions of LTRETURN with DUM06_INSTI and DUM10_INSTI. DUM_CHAIRMAN_DUM06 and DUM_CHAIRMAN_DUM10 are the interactions of DUM_CHAIRMAN with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A The regression of CEO compensation with relative size of transaction in Model 5.2

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
PRCT_DEAL	790.130	**299.832****	**344.845****	89.831	470.510
	(1.000)	(2.360)	(2.330)	(0.140)	(0.670)
DUM06_INSTI	157.026	**-314.990****	**-312.766****	360.398	576.296
	(0.190)	(-2.360)	(-2.010)	(0.540)	(0.780)
DUM10_INSTI	-445.447	**-437.858*****	**-421.025*****	-7.293	162.026
	(-0.550)	(-3.350)	(-2.770)	(-0.010)	(0.220)
R^2-ADJUSTED	0.341	0.432	0.510	0.198	0.221

Panel B The regression of CEO compensation with relative size of transaction in Model 5.3-A

	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
CAR2	-13552.000	**-2792.512***	-3193.382	-13503.000	-7500.698
	(-1.290)	(-1.660)	(-1.630)	(-1.580)	(-0.800)
PRCT_DEAL	686.593	**275.340****	**315.830****	-1.440	423.426
	(0.860)	(2.170)	(2.140)	(0.000)	(0.600)
DUM_CHAIRMAN	59.404	149.811	**236.262****	207.359	-158.408
	(0.090)	(1.480)	(2.010)	(0.400)	(-0.280)
DUM06_INSTI	226.619	**-295.701****	**-290.075***	417.896	606.515
	(0.270)	(-2.220)	(-1.870)	(0.620)	(0.810)
DUM10_INSTI	-375.065	**-419.750*****	**-399.656*****	52.763	193.295
	(-0.460)	(-3.230)	(-2.640)	(0.080)	(0.270)
CAR2_DUM06	13770.000	**4775.053****	**5571.523****	10071.000	5494.268
	(1.000)	(2.170)	(2.180)	(0.900)	(0.450)
CAR2_DUM10	14036.000	**3510.131***	**4147.664***	12114.000	6286.765
	(1.180)	(1.840)	(1.870)	(1.250)	(0.590)
R^2-ADJUSTED	0.339	0.440	0.517	0.197	0.216

Panel C The regression of CEO compensation with relative size of transaction in Model 5.3-B					
Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN	-420.482	-203.619	-284.786	68.990	-38.889
	(-0.350)	(-1.060)	(-1.270)	(0.070)	(-0.040)
PRCT_DEAL	835.377	**298.616****	**342.634****	139.575	522.105
	(1.050)	(2.340)	(2.310)	(0.220)	(0.740)
DUM_CHAIRMAN	154.292	164.700	**253.970****	277.712	-89.988
	(0.240)	(1.610)	(2.140)	(0.540)	(-0.160)
DUM06_INSTI	79.004	**-348.381****	**-354.302****	359.708	555.425
	(0.090)	(-2.560)	(-2.240)	(0.520)	(0.740)
DUM10_INSTI	-469.847	**-466.400*****	**-457.144*****	35.889	190.231
	(-0.570)	(-3.510)	(-2.960)	(0.050)	(0.260)
LTRETURN_DUM06	690.356	278.884	346.341	45.829	216.465
	(0.540)	(1.360)	(1.450)	(0.040)	(0.190)
LTRETURN_DUM10	-41.517	200.763	257.152	-524.335	-430.444
	(-0.030)	(0.960)	(1.060)	(-0.500)	(-0.370)
R^2-ADJUSTED	0.338	0.432	0.511	0.195	0.218

Panel D The regression of CEO compensation with relative size of transaction in Model 5.5					
Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
PRCT_DEAL	780.314	**298.428****	**342.841****	98.916	460.363
	(0.990)	(2.340)	(2.310)	(0.150)	(0.650)
DUM_CHAIRMAN	-801.969	311.842	402.666	-934.357	-1025.255
	(-0.550)	(1.330)	(1.470)	(-0.790)	(-0.790)
DUM06_INSTI	-318.262	-166.232	-149.182	-709.143	112.400
	(-0.230)	(-0.740)	(-0.570)	(-0.630)	(0.090)
DUM10_INSTI	-1326.639	-338.359	-329.737	-762.370	-720.334
	(-0.980)	(-1.540)	(-1.290)	(-0.690)	(-0.590)
DUM_CHAIRMAN_DUM06	734.945	-233.579	-257.225	1678.594	716.881
	(0.420)	(-0.830)	(-0.780)	(1.180)	(0.460)
DUM_CHAIRMAN_DUM10	1357.351	-156.907	-144.998	1188.464	1358.689
	(0.810)	(-0.580)	(-0.460)	(0.870)	(0.900)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.337	0.429	0.507	0.196	0.217
N	253	253	253	253	253

Table 19 Changing institutional ownership cutoff percentage from 6%-10% to 5%-10% in Model 5.2, 5.3, and 5.5

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. The 5% institutional ownership is used to distinguish widely held firms and institution controlled firms. The dependendt variables are CEO total compensation, bonus, salary plus bonus, stock options, and restricted stocks plus stock options. PRCT_DEAL is the percentage of transaction value to the bidders'. DUM05_INSTI and DUM10_INSTI are the indicators of 5%-10% and 10% plus institutional ownerships. CAR2 is the announcement period cumulative abnormal return in (-1, 0). DUM_CHAIRMAN indicates CEO duality. CAR2_DUM05 and CAR2_DUM10 are the interactions of CAR2 with DUM05_INSTI and DUM10_INSTI. LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). LTRETURN_DUM05 and LTRETURN_DUM10 are the interactions of LTRETURN with DUM05_INSTI and DUM10_INSTI. DUM_CHAIRMAN_DUM05 and DUM_CHAIRMAN_DUM10 are the interactions of DUM_CHAIRMAN with DUM05_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panel A The regression of CEO compensation with 5% to 10% and 10% plus institutional ownerships in Model 5.2

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
DUM05_INSTI	989.504	**-528.160*** **	**-550.577*** **	1439.010	**1926.228**
	(0.900)	(-2.970)	(-2.660)	(1.630)	(1.980)
DUM10_INSTI	321.044	**-660.176*** **	**-662.815*** **	980.198	1428.382
	(0.290)	(-3.720)	(-3.210)	(1.110)	(1.470)
R^2-ADJUSTED	0.343	0.429	0.507	0.210	0.234

Panel B The regression of CEO compensation with 5% to 10% and 10% plus institutional ownerships in Model 5.3-A

Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
CAR2	-13201.000	**-5906.952** **	**-7190.205** **	-5202.174	-1326.593
	(-0.820)	(-2.290)	(-2.400)	(-0.400)	(-0.090)
DUM_CHAIRMAN	72.308	**178.562***	**270.421** **	167.335	-195.521
	(0.110)	(1.770)	(2.300)	(0.330)	(-0.350)
DUM05_INSTI	1177.181	**-407.854** **	**-402.878***	1439.581	**1877.855***
	(1.030)	(-2.240)	(-1.900)	(1.570)	(1.860)
DUM10_INSTI	516.350	**-536.055*** **	**-510.431** **	982.753	1379.846
	(0.450)	(-2.940)	(-2.410)	(1.070)	(1.360)
CAR2_DUM05	7185.352	**6959.073** **	**8540.929*** **	-4269.159	-5799.084
	(0.410)	(2.450)	(2.590)	(-0.300)	(-0.370)
CAR2_DUM10	13565.000	**6593.177** **	**8096.769** **	3874.915	30.107
	(0.800)	(2.430)	(2.570)	(0.280)	(0.000)
R^2-ADJUSTED	0.340	0.440	0.518	0.207	0.229

Panel C The regression of CEO compensation with 5% to 10% and 10% plus institutional ownerships in Model 5.3-B					
Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
LTRETURN	-1226.724	**-1031.358****	**-1385.321*****	-110.358	564.372
	(-0.450)	(-2.370)	(-2.750)	(-0.050)	(0.230)
DUM_CHAIRMAN	123.367	159.492	**245.842****	247.999	-111.772
	(0.190)	(1.570)	(2.090)	(0.490)	(-0.200)
DUM05_INSTI	721.379	**-757.076*****	**-851.196*****	1423.448	**2050.010**
	(0.580)	(-3.800)	(-3.690)	(1.420)	(1.860)
DUM10_INSTI	91.312	**-893.058*****	**-968.932*****	1007.064	1599.968
	(0.070)	(-4.450)	(-4.170)	(1.000)	(1.440)
LTRETURN_DUM05	1458.796	**1088.871****	**1428.703*****	255.995	-394.190
	(0.530)	(2.460)	(2.790)	(0.120)	(-0.160)
LTRETURN_DUM10	816.380	**1052.276****	**1384.680*****	-341.303	-1010.481
	(0.300)	(2.370)	(2.690)	(-0.150)	(-0.410)
R^2-ADJUSTED	0.340	0.439	0.519	0.207	0.231

Panel D The regression of CEO compensation with 5% to 10% and 10% plus institutional ownerships in Model 5.5					
Variable	TOTAL	BONUS	SALARY_BONUS	OPTION	STOCK_OPTION
DUM_CHAIRMAN	-830.710	374.476	463.942	-125.193	-770.233
	(-0.380)	(1.070)	(1.140)	(-0.070)	(-0.400)
DUM05_INSTI	560.186	-372.083	-386.349	1194.065	1709.818
	(0.310)	(-1.280)	(-1.140)	(0.820)	(1.070)
DUM10_INSTI	-581.419	**-553.651***	**-569.795***	805.971	733.694
	(-0.320)	(-1.880)	(-1.660)	(0.550)	(0.450)
DUM_CHAIRMAN_DUM05	637.623	-258.616	-274.431	405.015	292.396
	(0.270)	(-0.690)	(-0.630)	(0.220)	(0.140)
DUM_CHAIRMAN_DUM10	1365.116	-179.758	-161.904	292.179	1030.672
	(0.600)	(-0.480)	(-0.370)	(0.160)	(0.510)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.339	0.425	0.504	0.203	0.230
N	253	253	253	253	253

Table 20 Analysis of changes in CEO compensation as opposed to the level of compensation using Models 5.2, 5.3, and 5.5

The regressions in this table include all 268 events from non-family bidding firms from 2001 to 2005. The dependendt variables are the differences of CEO total compensation, bonus, salary plus bonus, stock options, and restricted stocks plus stock options between completion years and one year prior. PRCT_DEAL is the percentage of transaction value to the bidders'. DUM06_INSTI and DUM10_INSTI are the indicators of 6%-10% and 10% plus institutional ownerships. CAR2 is the announcement period cumulative abnormal return in (-1, 0). DUM_CHAIRMAN indicates CEO duality. CAR2_DUM06 and CAR2_DUM10 are the interactions of CAR2 with DUM06_INSTI and DUM10_INSTI. LTRETURN is 3-year market-adjusted monthly average stock return in (1, 36). LTRETURN_DUM06 and LTRETURN_DUM10 are the interactions of LTRETURN with DUM06_INSTI and DUM10_INSTI. DUM_CHAIRMAN_DUM06 and DUM_CHAIRMAN_DUM10 are the interactions of DUM_CHAIRMAN with DUM06_INSTI and DUM10_INSTI. ***, **, and * indicate respectively significance at the 1%, 5%, and 10% levels.

Panle A The regression of the changes in CEO compensation in Model 5.2					
Variable	ΔTOTAL	ΔBONUS	ΔSALARY_BONUS	ΔOPTION	ΔSTOCK_OPTION
DUM06_INSTI	2078.414	**-238.713****	**-236.656***	1899.734	**2343.599**
	(1.500)	(-2.000)	(-1.960)	(1.570)	(1.740)
DUM10_INSTI	1218.583	**-452.096*****	**-441.733*****	1488.711	1749.679
	(0.900)	(-3.880)	(-3.740)	(1.260)	(1.330)
R^2-ADJUSTED	0.031	0.213	0.211	0.023	0.032
P-VALUE of F-TEST	0.153	<.0001	<.0001	0.212	0.148

Panel B The regression of the changes in CEO compensation in Model 5.3-A					
Variable	ΔTOTAL	ΔBONUS	ΔSALARY_BONUS	ΔOPTION	ΔSTOCK_OPTION
CAR2	**50100.000*****	**-3292.548****	**-3120.304****	**44376.000*****	**53353.000*****
	(2.910)	(-2.230)	(-2.080)	(2.970)	(3.200)
LTRETURN	-579.293	66.125	53.414	**-840.146***	-659.405
	(-1.020)	(1.350)	(1.080)	(-1.700)	(-1.200)
DUM_CHAIRMAN	1416.319	97.434	89.223	1400.461	1455.716
	(1.360)	(1.090)	(0.980)	(1.550)	(1.440)
DUM06_INSTI	1836.803	**-221.862***	**-219.919***	1664.136	2086.303
	(1.340)	(-1.880)	(-1.840)	(1.390)	(1.570)
DUM10_INSTI	984.072	**-438.424*****	**-428.240*****	1256.461	1501.008
	(0.730)	(-3.800)	(-3.660)	(1.080)	(1.150)
CAR2_DUM06	**-44370.000***	**5181.980*****	**5214.624*****	**-40485.000****	**-48078.000****
	(-1.950)	(2.660)	(2.640)	(-2.060)	(-2.190)
CAR2_DUM10	**-48469.000****	2592.591	2549.527	**-48313.000*****	**-51304.000*****
	(-2.470)	(1.540)	(1.490)	(-2.840)	(-2.700)
R^2-ADJUSTED	0.049	0.230	0.228	0.049	0.055
P-VALUE of F-TEST	0.069	<.0001	<.0001	0.069	0.050

Panel C The regression of the changes in CEO compensation in Model 5.3-B					
Variable	ΔTOTAL	ΔBONUS	ΔSALARY_BONUS	ΔOPTION	ΔSTOCK_OPTION
LTRETURN	-1353.785	46.077	25.270	-1387.703	-1595.245
	(-0.680)	(0.270)	(0.140)	(-0.800)	(-0.820)
DUM_CHAIRMAN	88.590	-59.947	-70.448	-113.633	4.632
	(0.120)	(-0.940)	(-1.090)	(-0.180)	(0.010)
DUM06_INSTI	2006.948	**-244.237****	**-244.774****	1878.358	2257.075
	(1.420)	(-2.010)	(-1.990)	(1.530)	(1.650)
DUM10_INSTI	1087.371	**-452.921*****	**-442.654*****	1374.589	1592.129
	(0.790)	(-3.800)	(-3.670)	(1.140)	(1.190)
LTRETURN_DUM06	545.791	49.036	72.264	108.242	661.746
	(0.260)	(0.270)	(0.390)	(0.060)	(0.320)
LTRETURN_DUM10	1251.389	-12.562	-21.870	1252.539	1499.721
	(0.580)	(-0.070)	(-0.120)	(0.670)	(0.710)
R^2-ADJUSTED	0.024	0.207	0.207	0.020	0.026
P-VALUE of F-TEST	0.210	<.0001	<.0001	0.247	0.194

Panel D The regression of the changes in CEO compensation in Model 5.5					
Variable	ΔTOTAL	ΔBONUS	ΔSALARY_BONUS	ΔOPTION	ΔSTOCK_OPTION
DUM_CHAIRMAN	**5096.036****	326.001	348.592	**3968.559***	**5153.998****
	(2.100)	(1.560)	(1.640)	(1.880)	(2.190)
DUM06_INSTI	**4568.529****	-77.477	-30.834	3257.061	**4847.323****
	(1.980)	(-0.390)	(-0.150)	(1.620)	(2.160)
DUM10_INSTI	**4562.508****	-261.090	-245.261	**4219.921****	**5114.881****
	(2.020)	(-1.340)	(-1.240)	(2.150)	(2.330)
DUM_CHAIRMAN_DUM06	-3876.647	-251.512	-321.985	-2095.393	-3897.776
	(-1.330)	(-1.000)	(-1.260)	(-0.830)	(-1.380)
DUM_CHAIRMAN_DUM10	**-5176.566***	-296.431	-306.477	**-4201.592***	**-5209.416***
	(-1.850)	(-1.230)	(-1.250)	(-1.720)	(-1.920)
YEAR & INDUSTRY	YES	YES	YES	YES	YES
R^2-ADJUSTED	0.037	0.211	0.210	0.029	0.039
P-VALUE of F-TEST	0.125	<.0001	<.0001	0.176	0.114
N	253	253	253	253	253

Figure 1 The proportion of each components of CEO compensation in M&A year